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For Index to Advertisements see Page 850. For Literary Contents see Page 862.

# INDEX TO ADVERTISEMENTS.

(THOSE WITHOUT NUMBER OF PAGE DO NOT APPEAR IN THIS ISSUE.)


| | PAGE. |
|---|---|
| Appleby, Bros. ... Dry Crushing Rolls | 849 |
| Austin, J. B. ... Mineralogist | 849 |
| Bank of Africa, (Ltd.) | 849 |
| Brenton Symons | 849 |
| British Guiana Bank | 876 |
| Bennett, Sons, and Co. ... Fuse Manufacturers | 873 |
| Birkbeck Bank | 876 |
| Bowes-Scott and Western ... Mining Machinery | 882 |
| Bute Works Supply Company (Limited) ... Steel Rails, &c. | 873 |
| Business Cards | 849 |
| Campbell-Johnston, R. C. ... Mining Engineer | 849 |
| Cannock Chase Colliery Company ... Coal Exporters | 852 |
| Cassel Gold Extracting Co. (Ltd.) ... MacArthur-Forrest Process | 874 |
| Champion Rock Borer Co. ... Rock Borers | 849 |
| Charleton, A. G. ... Mining Engineer | 853 |
| Clarkson-Stanfield Concentrator (Ltd.) ... Dry Concentration | — |
| Clayton and Shuttleworth ... Engineers | 872 |
| **Companies and Legal Announcements** | 849 |
| Cornforth and Co. ... Share Dealers | 874 |
| Cotton Powder Co. (Ltd.) ... Explosives | 876 |
| Curtis's and Harvey ... Gunpowder Manufacturers | 849 |
| Davies, Henry ... Mining Engineer | 853 |
| Davis and Son ... Mining, &c., Instruments | 849 |
| Daw, A. and Z. ... Mining and Civil Engineers | 874 |
| Daw, A. and Z. ... Rock Drills | 876 |
| Delta Metal Co. (Ltd.) ... Metal | 874 |
| Dixon and Co. ... Iron Roofs and Buildings | 849 |
| Edmands, Herbert R. ... Assay Office | 852 |
| Elliman, Sons, and Co. ... Embrocation | 849 |
| Fairley, W. ... Mining Engineer | 872 |
| **For Sale** | 850 |
| Francis and Jenkins ... Copper Works Ladles | — |
| Fraser and Chalmers (Ltd.) ... Mining Machinery | — |
| Frictionless Engine Packing Company ... Engine Packing, &c. | 867 |
| Gates Ironworks Co. ... Rock and Ore Breaker | — |
| Gilkes and Co. ... Turbines | — |
| Green, G. ... Ore Dressing Machinery | |

| | PAGE |
|---|---|
| Gregory, G., and Co. ...Stock and Share Dealers | 849 |
| Hardy Patent Pick Co. ... High Class Tools | — |
| Hathorn, Davey and Co. ... Pumping Engines | — |
| Holman Bros. ... Rock Drills and Compressors | 853 |
| Hopkinsons and Co. (Ltd.) ... Safety Boiler Mountings | 851 |
| Howes, S. ... Turbines | 852 |
| Humboldt Engineering Works Co. ... Mining Machinery | 874 |
| Humble, S., jun. ... Hand Power Fan | 873 |
| Huntington, Professor ...Instruction in Assaying | 849 |
| Ingersoll-Sergeant Drill Co. of America, Rock Drills and Compressors | 850 |
| Ireland, James ... *Colliery Ready Reckoner* | 873 |
| Jones, J. A. ... Mining Engineer | 852 |
| Kitto, B. ... Assay Office | 849 |
| Lambert's Wharfage Company | 882 |
| Larmuth, T., and Co ... Mining Machinery | 875 |
| Lancashire Patent Belting Co. ... Mining Specialities | — |
| Lloyd and Lloyd ... Tubes | — |
| Maclean, J. Grant ... Share and Iron Broker | 849 |
| McNeill's Code | 849 |
| Marsden, H. R. ... Stone Breakers and Ore Crushers | 876 |
| Martin and Pethybridge ... Assay Laboratory | 849 |
| Merry and Co. ... Assayers | 849 |
| Merton and Co. ... Aluminium | 852 |
| Middleton, Richard J. ... Mining Agent | 849 |
| Miners Safety Explosive Com. (Ltd.) ... Explosives | 875 |
| Morpurgo, M. J. ... Gold Mining Agency | 849 |
| Nobel's Explosives Co. (Ltd.) ... Water Cartridges, &c. | — |
| Pacific Mining Agency and Trust Company... Commission Agency | 882 |
| Parkyn and Co., Messrs. ... Mine Owners and Managers | 849 |
| Parkin ... Signal Bells | 874 |
| Pass and Son ... Buyers of Lead Ashes, &c. | 882 |
| Phosphor Bronze Co. (Ltd.)... Bulls Metal, &c. | 852 |

| | PAGE. |
|---|---|
| Piggott and Co. ... Welded and Rivetted Pipes | — |
| **Publications** | 873 |
| Robey and Co. ... Engines and Ore Crushers | — |
| Roburite Explosives Co. (Ltd.) ... Explosives | 875 |
| Ropeways Syndicate ... Aerial Wire Ropeways | — |
| Rose, James ... *New Guide to the Iron Trade* | 873 |
| Royal Mining Academy at Clausthal | 872 |
| **Sales by Auction** | 872 |
| Sandycroft Foundry Company ... Mining Machinery | — |
| Sandycroft Foundry Company ... Electrical Machinery | — |
| Schram and Co. ... Rock Drills and Compressors | 852 |
| **Shipping** | 873 |
| Stanley, W. F. ... Mathematical Instruments | 850 |
| Stevens and Co. ...Stock and Share Dealer | 849 |
| Stewart and Clydesdale ... Iron and Steel Tubes | — |
| Stewart and Co. (Ltd.) ... Engineers and Boiler Makers | — |
| Tacknote ... *Form of Licence to Explore* | 873 |
| Tangyes Limited ... Engines, &c. | — |
| **To Let** | 872 |
| Tuck and Co. (Ltd.) ... Packing Manufacturers | — |
| United Asbestos Co. (Ltd.)... ... Asbestos | 873 |
| Unity Safety Fuse Co. ... Safety Fuse | — |
| Varila, Walter de ... Assayer | 849 |
| Vivian's Boring Co. (Ltd.) ... Boring Machinery | 849 |
| Walker Brothers ...Air Compressing Engines | — |
| **Wanted** | 872 |
| Ward, Thos. W. ... Rails, &c. | 876 |
| Watson, P. and Co. ... Share Dealers | 849 |
| Weatherdon, J. H. ... "Monarch" Rock Drill | — |
| Wiggin and Co. (Ltd.) ... Nickel Refiners | 882 |
| Wood, Charles ... Portable Railways, &c | — |



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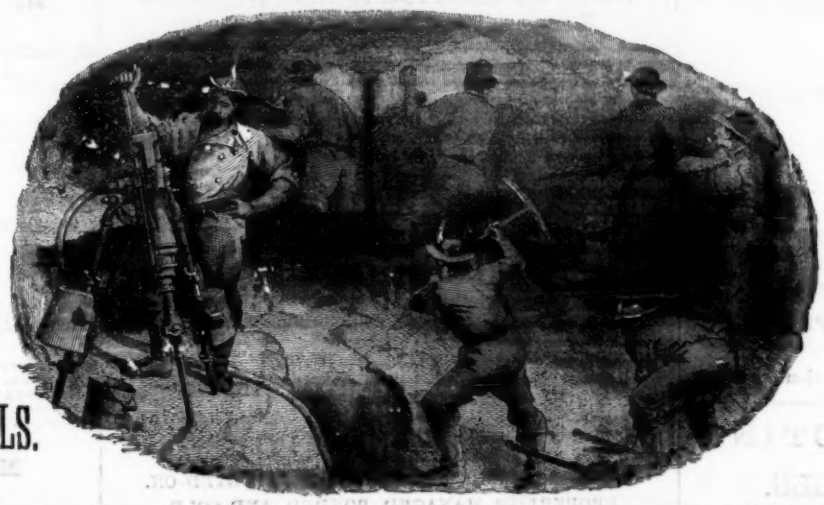

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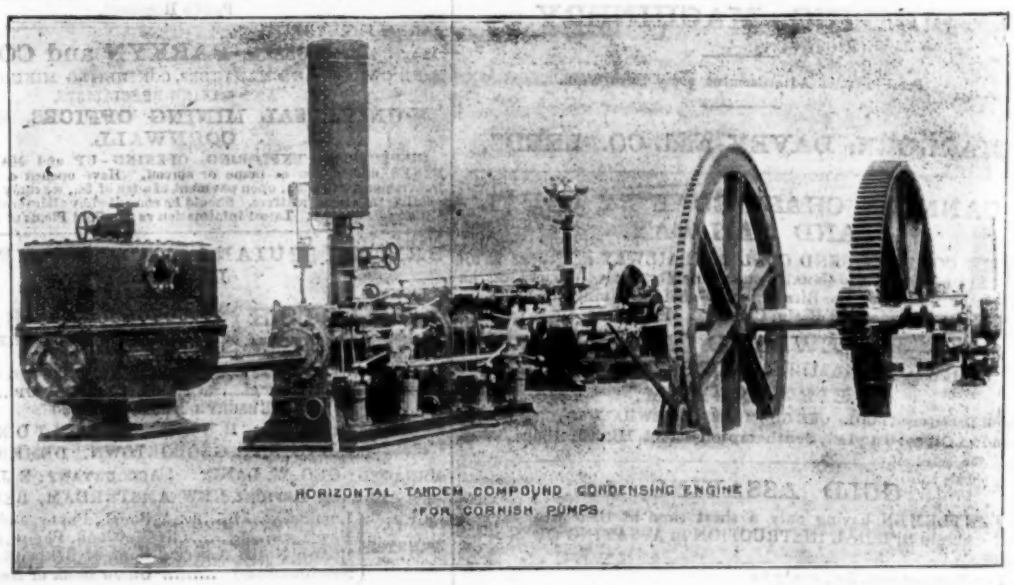

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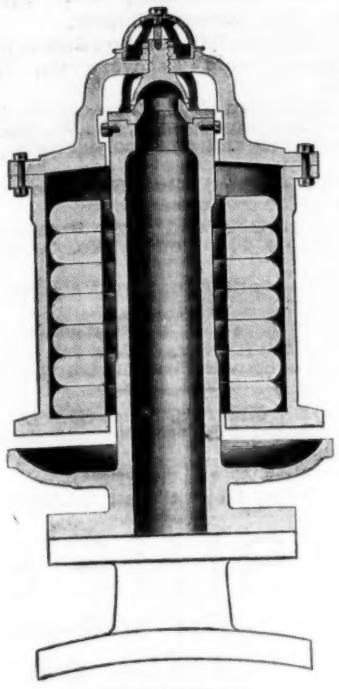

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FIG. 20.

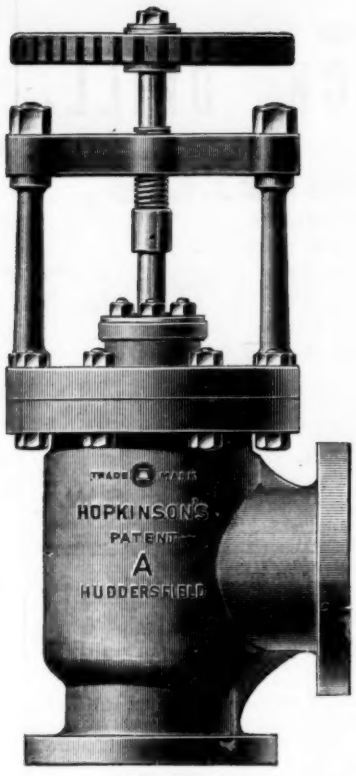


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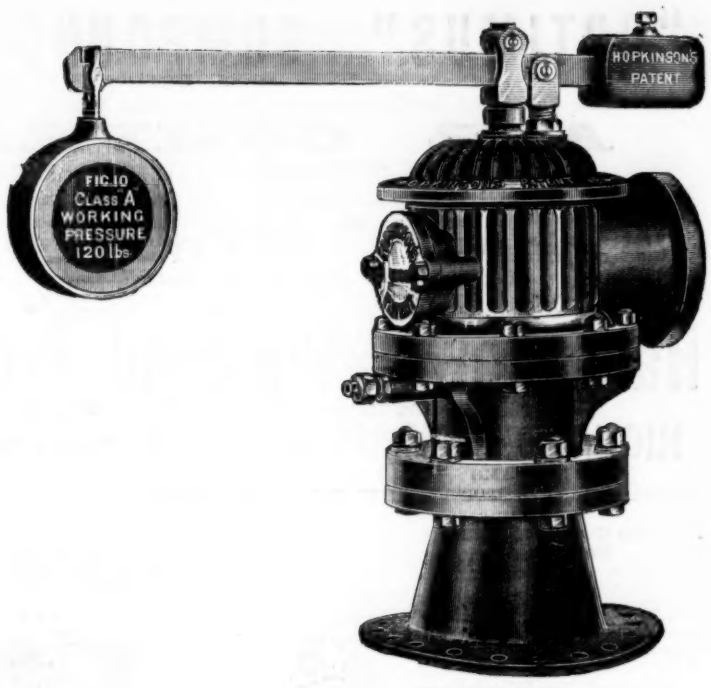
FIG. 100.

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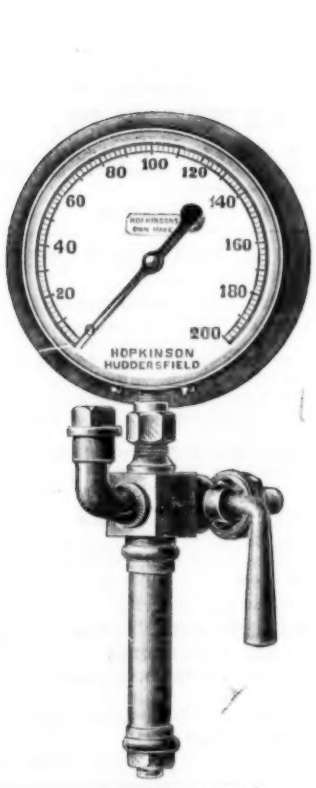
FOR HIGH STEAM AND LOW WATER.
FIG. 10.

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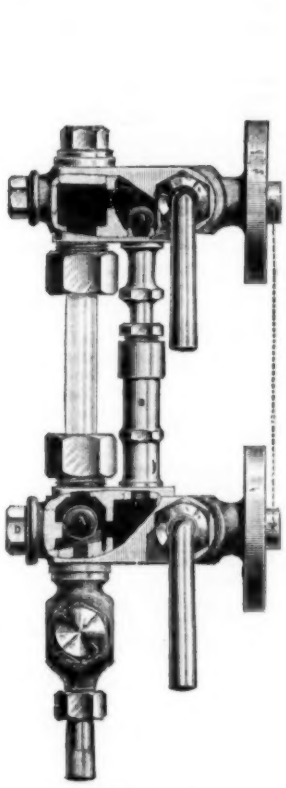
"OWN MAKE" STEAM GAUGE.
FIG. 401.



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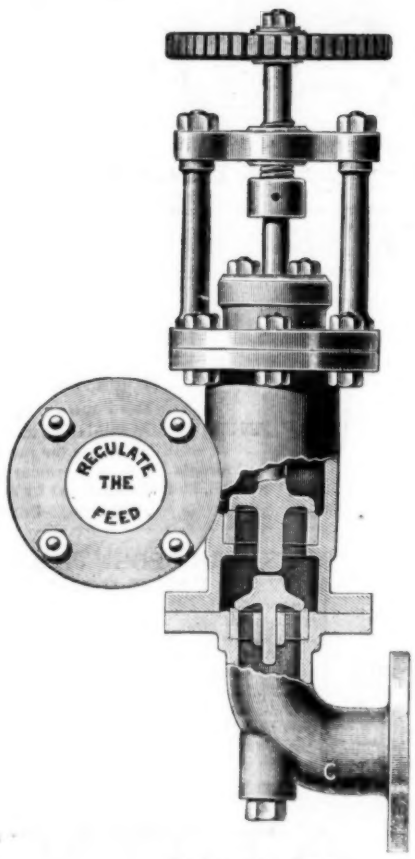
PATENT "ABSOLUTE" WATER GAUGE.
FIG. 644.




HOPKINSON'S
PATENT ACCESSIBLE CHECK-FEED VALVE.
FIG. 132.

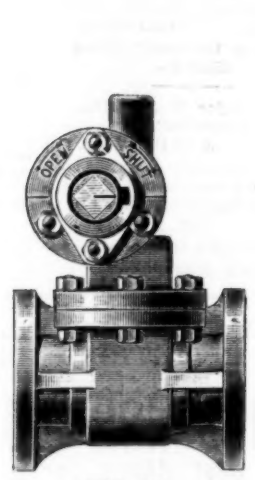
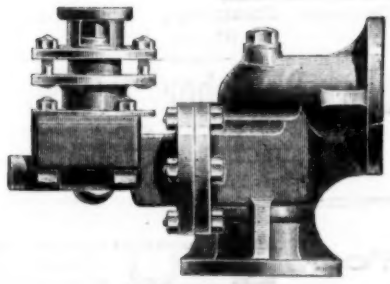



FIG. 254.



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PATENT PARALLEL SLIDE BLOW-OFF VALVES.—FIG. 250.

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—o—

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Master of the South Wilts Hounds.

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From R. Burdon Sanderson, Esq., Warren House, Belford
July 10th, 1892.

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R. BURDON SANDERSON.
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—o—

From Wm. J. Buckley, Esq., Penyfai, Llanelly.
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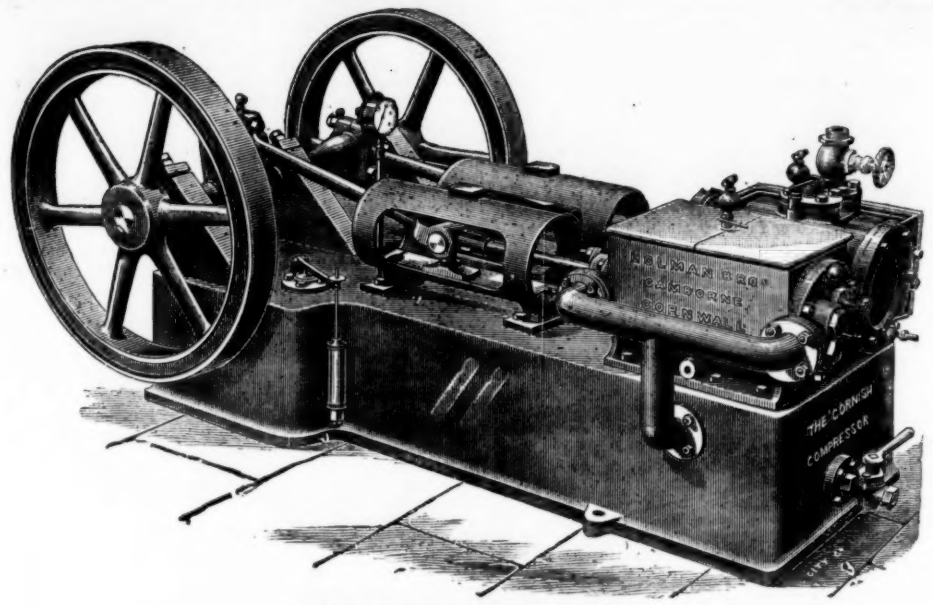


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At Botallack Mine, St. Just, Cornwall, **TWELVE MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** Drove, sunk, and rose **288 FATHOMS** in **12 MONTHS,** equal to five times the Speed of Hand Labour

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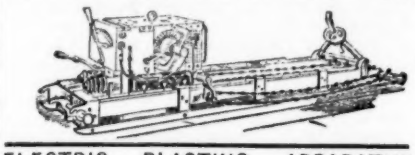

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# NEW PATENTS.

**LIST of APPLICATIONS for New Patents relating to Mining Metallurgical, Engineering, Railway and kindred matters, specially compiled from official sources for the "Mining Journal" by Messrs Rayner and Company, Patent Agents, 37, Chancery Lane, London, W.C., who will forward all information regarding them free on application.**

12838 John Charles Willis and Joshua Longbottom, 2, East Parade, Leeds.—Improvements in draught-producing apparatus for steam boiler and other furnaces, applicable also for other purposes.—July 1.

12843 Allan Stirling, 97, Queen Victoria Street, London.—Improvements in steam generators.—July 1.

12855 Reuben James Bott, 9, Park Place Villas, St. Mary's, Paddington, London.—Improvements in scrapers for water-tube boilers.—July 1.

12868 Jonathan Aldous May, 108, Priory Park Road, Kilburn, London.—Process and apparatus for separating metals from substances containing zinc oxide.—July 1.

12879 Victor Isidor Feeny, 60, Queen Victoria Street, London.—Improvements in grates and fire bars for furnaces of steam boilers and like purposes.—July 1.

12892 Alfred Julius Boult, 323, High Holborn, London.—Improvements in or relating to the treatment of refractory ores.—July 1.

12894 William Malcolm, 77, Chancery Lane, London.—Improvements in apparatus for draining water from the cylinders of steam engines and the like.—July 1.

12703 Richard Stephenson and Frank Chorlton, 37, Richmond Grove, Longsight, Manchester.—An improvement in slide valves in steam engines.—July 2.

12729 Robert Addie, 62, St. Vincent Street, Glasgow.—Process for extracting cyanides from blast furnace dust and other crude salts containing cyanogen.—July 2.

12749 Alfred Julius Boult, 323, High Holborn, London.—Improvements in or relating to pumps and motors.—July 2.

12781 Alfred Gander, 23, Coleman Street, London.—An improved brake for use on traction engines or the like.—July 2.

12806 William Thomas Ellison, 12, King Street, Irlams-o'-th'-Height, Manchester.—Improvements in the adjustment of driving chains of velocipedes.—July 3.

12843 Thomas Smith, William Hill Smith, and William Eastwood, Soho Works, Thornton Road, Bradford.—Improvements in air pumps and condensers of steam engines and the like.—July 3.

12913 Auguste Laune, 57, Barton Arcade, Manchester.—Improvements in or connected with miners' safety lamps.—July 4.

**SPECIFICATIONS PUBLISHED.**

11,896, Claridge, furnace fire bars, 1894; 11,901, Green, furnaces, 1894; 11,923 Weir and Ors, steam boilers, 1894; 12,368, Orvis, steam boiler furnaces, 1894; 12,916, Scott, separating and concentrating minerals, &c., 1894; 15,526, Willoughby, destructor furnaces, 1894; 15,699, Finger, steam boilers, 1894; 1647,3, Knight and Thode, steam generators, 1894; 32, Wantall, metal plates for steam boilers, &c., 1895; 9309, Wilton, T. and G., furnaces, 1895.

The above specifications published may be had of Messrs. Rayner and Co., 37, Chancery Lane, London, at 10d. each, including postage.

# JOINT-STOCK COMPANIES.

## NEW REGISTRATIONS.

THE following are among the joint-stock companies registered at Somerset House since our last notice:—

**Tambaroora Creek Gold Mine (Limited).**—Registered July 4 by Snell, Sons and Greenip, 1 and 2, George Street, Mansion House, E.C. Capital £50,000 in £1 shares. Objects: To adopt and carry into effect an agreement expressed to be made between J. K. Charleston of the first part and this company of the other part, for the acquisition of certain mines, mining rights, grants, leases, claims, concessions, &c., in the colony of New South Wales, to develop and work the same, and as miners, smelters, metallurgists, &c., in all its branches. The first directors—of whom there shall not be less than two nor more than five—are to be elected by the signatories. Qualification £100. Remuneration £100 each per annum, and 5 per cent. of the net profits, divisible. Registered office, 19, St. Swithin's Lane, E.C.

**Maori Gold Mine (Limited).**—Registered July 8 by Stanley, Attenborough, and Tyer, 15, Piccadilly, W. Capital £70,000 in £1 shares. Objects: To acquire certain mines, leases, claims, concessions, privileges, and property known as Maori, near Menzies, in the Coolgardie Gold Field, Western Australia, and with a view to the above to adopt and carry into effect an agreement expressed to be made between C. J. McMahon (as agent for the McMahon Syndicate) of the one part, and this comdany of the other part, to develop and turn to account the said property, and as miners and smelters generally.

**Premier Tati Monarch Reef Company (Limited).**—Registered July 9 by E. Flux and Leadbitter, 144, Leadenhall Street, E.C. Capital £300,000 in £1 shares. Objects: To acquire by lease, purchase, or otherwise certain mines, mining, and other rights, grants, leases, claims, concessions, &c., upon the reef known as the Monarch reef, the same being situate in the district of Tati, in the Administrative District of British Bechuanaland, in accordance with an agreement expressed to be made between the Tati Concessions (Limited) and Messrs. E. Erlanger of the first part and this company of the other part, to turn to account the said property, and to carry on the business of a mining, milling, and smelting company in all its branches.

**Anglo-French (Colonial) Mining Trust (Limited).**—Registered June 29, by Flux and Co., 3, East India Avenue, E.C. Capital £100,000, in £1 shares. Objects: To adopt and carry into effect an agreement (referred to in clause 2 of the Articles of Association) expressed to be made between the Lewis Mining Investment Trust (Limited), of the first part, and this company of the other part; to acquire, issue, place, sell, or otherwise deal with, or in any stocks, shares, bonds, debentures, and securities of every description; and also to act as agents between owners of mining and other properties in Africa and Australia, and investors in Europe. The first directors—of whom there shall be not less than three nor more than seven—are H. Selby, F. de Beaufort, J. Hall, J. Burnett, and H. Bush. Qualification, 200 shares. Remuneration, £500 per annum and a percentage of the profits, divisible.

**Western Australian Development Corporation (Limited).**—Registered July 9 by H. A. Farman, 1 and 2, Bucklersbury, E.C. Capital £50,000 in £1 shares. Objects: To adopt and carry into effect a certain agreement (referred to in clause 3 of the company's Articles of Association), and to prospect for, open, work, explore, develop, and maintain gold, silver, copper, coal, iron, and other mines, mining rights, minerals, and other properties and works.

**Trust Company (Limited).**—Registered by Hare and Co., 139, Temple Chambers, Whitefriars, E.C., with a capital of £50,000, in £5 shares. Object: To carry on the business of a financial trust company, and with a view thereto to issue, guarantee, or assist in issuing loans, stocks, shares, and securities of any Government, public body or corporation. Most of the regulations contained in Table A apply. Registered office, Finsbury House, Blomfield Street, E.C.

**Lagoon Creek Gold Mine (Limited).**—Registered July 4 by Fane, Sons and Greenip, 1 and 2, George Street, Mansion House, E.C. Capital £100,000 in £1 shares. Objects: To adopt and carry into effect an agreement expressed to be made between J. K. Charleston of the one part and this company of the other part for the acquisition, by purchase or otherwise, of certain mineral properties, mines, leases, concessions, claims, &c., in the colony of New South Wales, and to develop and turn to account the same in such manner as the company shall deem expedient.

# CONTRACTS OPEN:

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**** We shall be obliged by being promptly placed in possession of particulars regarding contracts open for competition, and of the results of successful tenders. In the latter case contract prices should be given.*

*The date given is that by which tenders must be delivered, in nearly all cases further information can be obtained on application at the addresses given. In applying for such the name of "The Mining Journal" should be mentioned as the original source of the information, concerning which further particulars are required.*

**HOME CONTRACTS.**

**Coal, July 25** (*Chelmsford*).—For a supply of such Hucknall, hard, Linby, or Brinsley coal, or other suitable steam coal, as they may require from August 1 to July 31, 1896, to be delivered at the Corporation Works, Mildmay Road, Chelmsford, for the Town Council. Forms of tender may be obtained of the Town Clerk.

**Sinking Well, July 29** (*Alnwick Moor*).—For sinking a well on Alnwick Moor. Particulars can be obtained at the office of Mr. William T. Hindmarsh, clerk of the council, 24, Bondgate Without, Alnwick, and tenders will be received by the clerk by July 29.

**Earthwork, July 23** (*Cairo*).—Tenders will be received at the Secretariat of the Egyptian Railway Administration at Cairo up to July 23 at noon for earthwork, masonry, pitching, buildings, and other works for the line from Kafr-Zayat to Chabas. Payments are guaranteed, and will be made by the Commission of the Public Debt, Egypt. Conditions, general and technical, and description of works, may be seen during office hours on application to Lieutenant-Colonel Western, Broadway Chambers, Westminster, S.W.

**Gas Coal, July 31** (*Wallingford*).—For the supply for one year from August 13 of about 900 tons of best screened gas coal, to be delivered free at the railway station, at Wallingford, in such quantities and at such times as the company may require, for the Wallingford Gas Light and Coke Company. Sealed tenders, endorsed "Tender for Gas Coal," to be delivered on or before July 3

# THE ECONOMIC IMPORTANCE OF THE MURCHISON RANGE.

## The gold in the conglomerate.

At a recent monthly meeting of the Geological Society of South Africa, held at Johannesburg, under the presidency of Dr. EXTON, Mr. WILSON-MOORE read a paper on the "Economic Importance of the Murchison Range."

The AUTHOR, in the course of his paper, said: It occurred to me, after I had read Mr. Draper's very excellent paper upon "The Primary Systems in South Africa, with Special Reference to the Conglomerate Beds of the Witwatersrand," that more allusion might have been made to their economic importance. When the question of starting this society was first mooted some of you who are present here to-night may remember that in speaking to the motion, I laid special stress upon the point that it would be desirable that the society's members should address themselves to practical as well as theoretical questions, I think it would be folly for us to burke the fact that geologists are frequently dubbed mere faddists and theorists, and that on the whole we do not make the most of our opportunities to prove that that contention is wrong. We are starting a great work in this country, and it will be, I venture to suggest, a great mistake if we start upon wrong lines. I need hardly add to what has already been mentioned by Mr. A. R. Sawyer and others when addressing you on previous occasions, that practical outcome from our work must be our aim and intention; and bearing in mind what they have said upon the subject, I hope you will agree with me that there is no apology needed for the title of this paper.—A Plea for Thoroughness: You will, perhaps, have noted that I have said we are "starting" a great work in this country, and it may have occurred to you that in saying this I am not taking sufficient cognisance of the work that has been done previously by Bain, Wyley, Schenk, Dunn, Green, Stowe, Molengraaff, Penning, Atherstone, Draper, and a host of others. I wished, however, in using the word, to lay special emphasis upon the fact that we ought to be the founders of the first systematic arrangement, from the Archæan rocks to the Quarternary sands and gravels, of a South African geological table. As it stands at present it is patchy and imperfect, while its nomenclature is, in a great measure, unsuitable, as it is assuredly loose and promiscuous. If our investigations are sound and thorough, our dicta will be respected here as well as throughout the scientific world; and if we are to succeed at all we must do our work thoroughly and conscientiously. I regard our present position much as one would look upon that of a child with a puzzle. A number of odds and ends, each fitments, have been placed in our hands by the sayings, writings, and doings of those who have gone before us in this field. They are, as given to us, a jumble, from which we can but pick out a few pieces which lie contiguously. As an incohesive heap they are well-nigh useless; pieced together, they form an accurate pattern of the crust of the South African soil. We are, I hope, starting with the intention of completing the puzzle, and of piecing the whole together, and it is in this respect that we are making a start which no one has previously attempted.—The Economic Importance of Granite: In Mr. David Draper's paper, to which I have already alluded, he states almost at the commencement that "in South Africa, as in other parts of the world, the nethermost rock is granite." It does not necessarily follow. The exact position of the granitoid or granitiform rocks in the earth's crust is not easy to define, because it has not been fully determined. The statement may be accurately modified by saying that igneous rocks, or, if you prefer it, plutonic or volcanic, or plastic rocks are beneath the lowest hypozoic rocks, such as the Archæan schists. Granite may be, and indeed is, of all geological ages, and the fact that when it reaches the surface it penetrates the uppermost horizon of sedimentary strata, and emanates from some deep-seated zone, need not necessarily mean that it is an obtruding portion detached or derivative from one huge similar sheet, either solid or plastic, lying in the earth's crust. Granite, and indeed all igneous rocks, unquestionably alter very much in structure and composition. As a result of their deposition or outpouring, it is highly probable that they undergo a change, *en passant*, induced by the character of the rocks they cleave and fracture, and I imagine that one and all of you have noticed the different methods of the crystallisation of the numerous aggregates they contain, as a result of the local conditions under which they have been deposited and cooled. I would not care to bind myself to the statement that the nethermost rock here or in any other country is granite, for the simple reason that we do not know, and are not ever likely to see, the nethermost rock. Now, I have purposely alluded to this matter, not in a spirit of carping criticism of Mr. Draper's useful and delightful paper, read at your last ordinary monthly meeting, but because the conditions under which granite has consolidated have a most important economic effect. I think Mr. Usher, a well-known geologist in England, has practically determined that the granite of Dartmoor is a Tertiary one. I am inclined to believe that the granite of the Cape Flats, near Capetown, is of similar age. The latter is perfectly useless for industrial purposes, being coarse-grained, and weathering very easily. In fact, I do not know of a Tertiary granite anywhere in this country which is of economic value. The Paarl granite is, on the other hand, of secondary age in point of deposition, and its splendid features as a useful product of the country are well known. In the Mahishimla Berg, in the Silati valley, there is a chain of granite hills, in which granite, greisen, syenite, and quartz-syenite are all present. There is present there a rock which I have named an amethyst-syenite, and which is of immense beauty. The amethystine-quartz grains are limpid and exquisitely tinted; the felspar is pink, and the hornblende bright green, the grains of the three constituent minerals being very even in point of number, and the two latter in point of size, never, however, becoming so large as to endanger the weather prospects of the rock. That rock, if near a market, would be the fortune of its quarrymen. Now the so-called granite at the Half-way House to Pretoria, does not appear to me to be true granite at all, and pieces of it have been sent to England for slicing, in order that the matter may be fully determined. So far as the bulk of it is concerned, it appears to lack the essential characteristics of a useful stone for building or monumental purposes, being fragmental, with its felspars too large, and containing too high a percentage of ferric minerals. But there are veins within the whole which contain excellent stone. Builders, architects, and engineers here should examine this deposit, for I am certain that some of it would be extensively employed were it but once given a trial. Of the other industrial products of local granite there is but little to say. Some time ago Mr. A. R. Sawyer brought with him from Mashonaland some really excellent kaolin, which, as you are probably aware, is a silicate of alumina, containing roughly 60 per cent. of silica and 40 of alumina, and is the natural or artificial result of the weathering of felspar in granite; but I am not aware of the impalpable white mineral having been found in the Transvaal. But as time goes on, and the population of this country increases, and as capital is offered for local manufactures, we shall find it desirable to make our own pottery and china; and so the granites at hand, which we are somewhat apt to regard as valueless, may receive the attention at our hands which I am sure they deserve.—Murchison Range and Letaba Beds: I have touched lightly upon the question of the possible economic importance of granite purely incidentally, being led to a consideration of its probable value by Mr. Draper's remark anent its being the nethermost rock. My main object, however, this evening was to give some particulars regarding the mineral riches of certain hypozoic formations in the northern part of the Transvaal. But on reading Mr. Draper's paper I am met at the outset by a serious difficulty. If Mr. Draper is correct, the Lydenburg beds of Dunn, and the Swazi beds of Schenk, are identical, not only with each other, but with the rocks of the Letaba. Mr. Draper says that no fossils have been found in the Lydenburg beds—at least, so I understand him. I myself found an unmistakeable *diplograpius pristis* in the slates of De Kaap, and that is quite sufficient to stamp them as Silurian. In the auriferous slates of Bendigo or Ballarat—I am uncertain which—Professor McCoy found *didyniograpsus*, which he kindly showed to me when I was in Australia, and I mentioned the fact of my find to him at the time. Now, I am certain that the beds of the Murchison range and Letaba have absolutely nothing in common with Silurian strata. They are, with the very uncertain exception of Ellerton limestone, absolutely hypozoic, and without a doubt Archæan schists, and are, I think, far anterior in point of geological age to Cambrian rocks. I am so certain of this that I would venture a fresh classification of the series, basing the order from my *diplograpsus pristis*:—

| | |
|---|---|
| Bokkeveld beds | (Upper Devonian). |
| Table mountain sandstone | (Lower Devonian). |
| Lydenburg-Swazi beds | (Silurian). |
| Malmesbury beds | (Lower Silurian, Cambrian). |
| Namaqualand schists | (Laurentian or Archæan). |

Regarding the age of the Bokkeveld beds, I agree with Mr. Draper that there can be no question; they contain typical Devonian fossils, found high up in that system. The Table mountain sandstone can only be regarded as Lower Devonian by analogy; this rock system is that of the Witwatersrand, but I doubt extremely if the apparent unconformability of the Hospital hill shales is anything more than reversed faulting, and I do not think they can belong possibly to the Malmesbury beds of Dunn. The Lydenburg-Swazi beds are, I am sure, from the fossil mentioned as found at De Kaap, Silurian; and the Malmesbury beds Lower Silurian or Cambrian by analogy, the passage lines being very smooth and even. The Namaqualand schists are highly crystalline rocks, schistose in a high degree. They include those of the Letaba, the Murchison, and the Molondotsi, in which places they are typically developed—long lines of beds of tremolite, actinolite, amphibolitic, schorlaceous schists with intercalated veins of quartz. All the beds are at a very high angle, and are crushed and wedged in between granitoid or sometimes diabasic flanks. To me they appear absolutely different from the Lydenburg Swazi beds, and I think Mr. Sawyer, who has studied them as well as I have, will acknowledge that they are of much greater antiquity than the beds at De Kaap, or those of Malmesbury. I am inclined to think that they are Laurentian beds, and one of the reasons which makes me place them here in geological sequence is worthy of consideration by the members of this society, and of study, when opportunity occurs. Some time ago—in October last, in fact—I had the honour of reading and illustrating a paper on "Some S. A. Rocks—Chiefly Igneous," before the local Association of Engineers and Architects. Among the slides prepared for the illustration of that paper was a slice of limestone kopje at the Ellerton, in the very heart of the amphibolitic schists there so well developed. Under a high-power microscope nothing could be made of that rock. It was pale brownish in colour, absolutely uncrystalline, and it was covered throughout with peculiar spherical or orbicular markings. Each of these was exactly similar to the others, and we came to the conclusion at that time that it was a structure of mineral lime. But I was not satisfied, and I spent many evenings with it, being chiefly struck with the exactitude of the constantly reproduced forms. It occurred to me that these might be organisms, as I could not think that any mere mineral form could be so replicated to such a nicety. Now, in Dr. Page's "Advanced Geology," you will find that he states the case for Laurentian organisms very concisely. ("Advanced Geology;" Dr. Page; p. 189.) And this description exactly fits in with that of the Ellerton Kopje rock. I have sent the specimen I had home for examination, and I have written for more samples of the rock in question, and I shall communicate to you the result of the deliberations in due course. But, apart from this evidence, I think an examination of the lithological features of the rocks in the Murchison and Letaba will at once dissociate them from those of Lydenburg and De Kaap, and place them in a totally different and much older zone. It may, therefore, be after all an error to call the Letaba or Murchison hypozoic rocks, but at present we must so regard them. I have digressed somewhat from the course I had marked out for myself this evening, but this has been my sole opportunity of replying to Mr. Draper's remarks. I will merely add that from personal examination I have no doubt whatever that the dolomite limestone formation overlies the Rand conglomerate series, but I am not sure that we are acting wisely in accepting it, without proof, as being identical with the Carboniferous limestone. But the settlement of its stratigraphical position is the first good work we have done for the mining industry, as it positively assures the continuance of our banket beds to a depth beyond which it will not, so far as we at present know, be possible to work them.—Northern Transvaal Mineral Belts: I will now, with your permission, proceed to the more direct portion of my paper, and ask you, by means of the map, to follow me to the Northern Transvaal, while we take a brief ramble among my Laurentian or Archæan schists. They are highly metalliferous; and the veins which they contain are for the most part constant over long stretches of country. The first point which will probably occur to you is that the veins of the Letaba have been anything but satisfactory from a mining point of view, and that their economic importance has been of a very low order. But the Letaba gold zone was and is a very narrow one, and it is broken into scattered sections every hundred yards or so. When, however, we approach the great belt of highly metalliferous country which extends in one unbroken line from Marabastad to past Witkopjes we are upon a different mineral belt altogether. The gneissic copper veins of Namaqualand have their exact counterpart in the Murchison, and I have no doubt that, when prospecting to the north of Piland's Berg is indulged in, it will be found that the only strip in the whole line of these schists, which Dunn plainly marks as existent there, will be found to be as well and as valuably mineralised as those stretches which have been already in part exploited. The copper ores of Namaqualand have been rightly famed as some of the richest in the world, and although those of the Murchison have received but little attention up to the present, there is sufficient evidence to prove that they will be remunerative likewise. The various mineral products of this great series of schists to which I desire to call your attention are gold, copper, antimony, tin, mercury, mica. (Dr. Page, "Advanced Geology," page 196.) Commencing with the most precious, and confining attention in the meantime to the Murchison ranges themselves, that is to say, the tract of country bounded on the east by Palabora, and on the west by Leydsdorp, there appear be three well-defined gold zones. The northernmost is that known as the Antimony line; a mile or two to the south is the Melati-Welnecia line; and at an interval of perhaps 2 miles to 3 miles is the La France-President-Sutherland reef line. The lithological characteristics of the enclosing rocks of the Antimony line are their schistose character, and their abundant evidences of having undergone great metamorphism. There are a series of hornblendic schists all tilted at so high an angle as to make the determination of a north or south dip a matter of considerable difficulty; these schists are intercalated with beds of altered quartzites. The ranges which they comprise rise to a height of about 1000 feet, though the average is very much lower. They are singularly little faulted, and pursue an approximate east and west course with great regularity for fully 40 miles. Upon this point it is necessary here to insist with some considerable force. Hitherto the auriferous quartz reefs of South Africa have, with one or two notable exceptions, to which I need not more particularly refer, failed to extend through any practical number of claims, being more or less lenticular in shape, the workable area being naturally very small. In the case of the Murchison Range, the reefs or lodes run for quite the distance I have stated, over which length of country they have been actually proved. The gold-bearing veins are three in number, approximately parallel to each other, and their dependence in depth has been proved to over 300 feet. So far they are known to be gold-bearing throughout, although they unquestionably are far richer in one place than in another. The depth of the enclosing strata is not so easy to arrive at or estimate, but along the Antimony line there is no sign of its cutting out, and I should compute the schists here, taking the various declining sections of the country to be many thousands of feet. The group of three reefs to which I have referred consists of (*a*) a white quartz vein, highly mineralised, with iron, antimony, and a little copper, richly auriferous in places, and varying in width from a foot up to three or four; (*b*) a vein of pure stibnite, antimony sulphide, at the Gravelotte Mine, impregnated with gold, not only in the oxide upon the surface, but in the very heart of the sulphide itself, and so far as tested everywhere along the range, auriferous; (*c*) a group of quartz and antimony stringers, also auriferous. To the north of the main group there are several other quartz reefs, none of which have had much work done upon them, but which frequently contain visible gold. The potential wealth of this group of reefs is enormous. Having been proved over so many miles and to such a depth, it may safely, I think, be conceded that here we have in South Africa at last a really permanent quartz-reefing field. I know of at least 10 miles of payable ground along that line, and if you will allow me to indulge in a little calculation I will endeavour to give you an idea of what wealth is lying buried in the range.—The Wealth of the Murchison Range. Assuming the average width of the auriferous quartz reefs at 2 feet, and their workable depth at 1000, we arrive over the length I have indicated, making every allowance for faults, &c., at a total tonnage of 7,000,000. If that ore is worth, on an average, 15 dwts., and I believe I am understating it when I put it at that, or £2 15s. per ton, we arrive at a grand total of value for each 1000 feet in depth over the ground already proved of £20,625,000. That, in itself, is no inconsiderable figure to leave lying idle in the ground, more especially when that value is not in isolated patches over miles of country, but is contained in one well-defined zone, the exact course of which is known and proved. But the value of the Antimony lines does not cease there. The most careful calculations have been made as to the cost of treating and shipping the stibnite itself, and it is found that taking into account the gold it contains, and elaborating the expenses referred to a really absurd figure, the profit per ton should reach at least £10. The tonnage contained over the known line of auriferous antimony is certainly twice as much as that estimated for the quartz reefs I have spoken of, and we find, then, that we have no less a sum than £150,000,000 worth of auriferous stibnite lying practically untouched and unworked in the Murchison Range. That is, of course, an amount far in advance of the world's requirements, but I hold to the belief that the stibnite will be worked for its gold alone, and there is, from present indications, every reason to believe that the value of its contained gold cannot be less than £20,000,000 sterling. So far as the Melati-Welnecia line is concerned, too little work has been done upon it to warrant the assumption of payability; but the outcrops at least are wonderfully rich, and the ore appears to hold out well in depth. When, however, we get to the La France-President-Sutherland line, we are again on a sound and well-proved belt. The enclosing rocks here are tremolite schists, talcose or hydro-micaceous ones, with some very highly metamorphosed quartzites. The reefs of the series have been proved to depths of from 100 to 400 feet, and they are as persistent and rich at the lowest point as they were upon the surface. The Main reef is not wide, averaging about 18 inches, but it is rich, and should give a yield of about 12 dwts. to the ton all round. The length over which it is proved now must be, with one or two breaks or gaps, which are rapidly being filled up, about 15 miles, and the total value of its contained mineral richness—without antimony—per 1000 feet in depth fully £25,000,000 sterling. Whether or not the granite of the Silati Valley will interfere with the persistence of the schists and their contained quartz lodes at an inconsiderable depth, I cannot say, but it appears unlikely, as at the Blue Jacket Mine, the shaft is down below the level, at which if the granite was nethermost to the schists it would have been reached. So far the results obtained by small reducing plants in the Murchison have been eminently satisfactory, and the miners and prospectors thereabouts have stuck to their claims and developed them with wonderful pertinacity.—Alluvial Gold and Copper Deposits. As for alluvial gold, the denudation from the ranges must have been enormous, and millions of ounces must be lying in the dry valley. But the configuration of the country is against any extended leads being found, and the precious metal shed from the reef must be greatly scattered along both the Groot Letaba and the Silati Valleys. I must now briefly consider the copper deposits at Palabora. Rising from a granite plain dotted with granite kopjes is a white crystalline limestone hill. It stands out by itself from the surrounding hills by reason of the different way in which it has weathered. Its longer axis is approximately north and south, and it is not more than a couple of miles in length. Such an occurrence is, I should say, unique, and it can only owe its salvation from utter denudation to the fact that it is highly mineralised. Along its axis there runs a rib of magnetite, with copper carbonate stains therein, and the whole hill is ramified in all directions by veins of chalcopyrite, bornite, and tetrahedrite. They are for the most part exceedingly thin, but the ore is of high grade. Throughout the Murchison Range, as numerous old workings testify, the search for and exploitation of copper ores must have been very great, and Palabora itself must have been the centre of a very large industry. The magnetite rib, about 2 to 4 feet wide, has not been proved to any depth, but the copper veins have been tapped at fully 50 feet below the surface, I incline to the belief that the magnetite will turn into an ore of copper at no great depth from the surface. The value of the ore in the Palabora Hill down to the granite line must be, at the present price for copper, several millions sterling. The copper ingots smelted by the natives in bygone time, a few of which are in existence, contain a large amount of alloy of some metal, but I could find no traces of tin in the ore itself. It has occurred to me that the other metal might be the antimony from the Murchison Range proper.—Tin and Cinnabar: Of tin in this district I have not much to say, but it occurs *in situ* in greisen, near the Great Letaba river, where I have seen it myself and others have reported its discovery as stream tin. The mercuriferous ore so far found is cinnabar. It occurs in two places, neither of which have been submitted to developing operations of any magnitude. The one place is far east on the Longwe Berg in quartzitic sandstones abutting on dorphyrite; and the other is to the north of Witkopjes. The mica veins occur in the granites, or rather granolites of the valleys, but so far no work has been done upon them. Twenty-five years ago our fellow member, Mr. C. J. Osborne, found large plates of perfectly clear muscovite there, and I found a deposit with slabs measuring, perhaps, nine inches by four, and there are many localities where six inch plates can be had in quantity. The larger plates will be worked in due course. This occurrence is noteworthy. The rock in which they occur is really speaking a highly micaceous granite; nearing the approach of any one deposit of mica, the granite becomes a granulite, and directly afterwards when in conjunction with the mica, a dorplupy, the suddenly seceding quartz appearing by itself as a vein. Thus it appears that at certain spots the conditions of the consolidation of the granitic magnea were such as to allow each constituent mineral to crystallise out by itself from the parent mass, and form what are, to all intents and purposes, a reef of quartz, one of feldspar and one of mica, the arrangement in lines being striking. I might suggest that the cause was exceeding slowness of cooling and an absence of pressure at the time of consolidation, possibly assisted by galvanic action.

I am afraid I have not put forward much that is new in this paper, but I have thought that one of the duties of this society was to circulate knowledge which can be turned to profitable account. I shall be glad if I can find support to my contention that the Letaba-Murchison rocks are pre-Silurian, a point of great value for us when we commence the publishing of our table of South African geological sequence. I am well aware that there are many considerations of climate and of facility, which must be reckoned with before the potential value of a great mineral district can be properly gauged. But they are far from insurmountable, nor are they in the least appalling in the case of the district to which I have chiefly alluded to to-night. And the mineral resources of the Namaqualand schists have been such good friends to South Africans on the west side of the continent, that I think we may fairly trust those of their counterpart on the eastern.

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SUTHERLAND REEF.—The directors notify that they are alloting the whole issue of £22,000 10 per cent. preference shares. Allotment letters are being sent out.

# IMPROVEMENTS IN WATER-SPRAYING APPARATUS FOR COAL MINES.

At the last monthly meeting of the Manchester Geological Society, Mr. WM. SAINT, one of Her Majesty's Inspectors of Mines, again brought forward the important question of damping coal dust in mines, which had been discussed at a previous Wigan meeting of the society. In the course of a paper which he read, he said he had much pleasure in bringing before the society an improved water-spraying apparatus, and describing this apparatus, of which we give two illustrations, he proceeded :—

It is a patented invention of my own, and has been designed to meet the requirements of a reliable and efficient sprayer, for the purpose of humidifying and cooling the air, and for laying the dust in mines. This apparatus (which, it may be added, is being manufactured by Mr. John Royle, of the Dalham Works, Manchester) consists of a sprayer A, filter B, and back-pressure valve E,

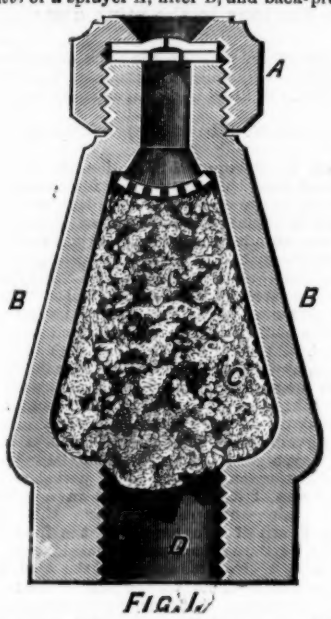


FIG. 1.

combined in a metal fitting, about 4 inches long, attachable to a half-inch pipe with standard thread D. Immediately behind the spraying nozzle is a fixed plate, having one or more diagonal holes away from the centre, and between this plate and the nozzle a small chamber is formed, into which the water enters under pressure, and there gyrates or whirls, and coming through the discharge hole in a spiral, the water instantly expands in a cyclonic and perfectly uniform mist-like spray. The mist issues with a noise and the appearance similar to that of steam escaping from the safety valve of a boiler, and it is so fine that it readily floats in even a slowly-moving current of air. The plates may be made in a variety of forms, and the size and angles of the holes varied to give the desired effect. The filter may be a fine sieve, or any suitable porous material, but, perhaps, sponge, C, is the best, as it is very effective in removing any mechanical impurities which may be present in, and offers very little resistance to, the passage of water. I anticipate that under favourable conditions it will last a long time without cleaning. The back-pressure valve is very simple in construction, and consists of a hollow cap, through which horizontal holes, G, are drilled, and over this is stretched a piece of rubber tubing, F, which allows the water to pass outwards to feed the sprayer. Back-pressure valves seem to be necessary where a number of sprays are started and stopped at intervals by a valve on the main pipe, to prevent syphoning, which would take place with sprayers fixed at different levels. Of course, if the sprayers were started separately, the back-pressure valves would be unnecessary. This spraying apparatus will work

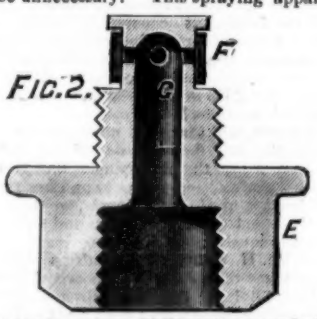


FIG. 2.

satisfactorily at pressures from 50 lbs. per square inch upwards. By exchanging the plates the water can be varied from half a gallon per hour upwards. It is desirable to run the sprayers continuously, and it will probably be found practicable to do so with sprayers passing from one to two gallons of water per hour.

The apparatus has been tried in a South Wales steam coal colliery with most satisfactory results, and I am reliably informed that it is superior to anything of the kind used for the purpose in that district. It has also been tried in a dry and dusty return air and main haulage road, at the Hewlett Colliery, belonging to the Wigan Coal and Iron Company. Mr. Dobb, the manager, who has had a long experience with sprayers, expressed himself as being perfectly satisfied with its working, and I have his authority to say that he considers its application will enable the roads to be damped uniformly, to a degree hitherto not attained by any similar appliance.

In a current of about 50,000 cubic feet, and a velocity of 720 feet per minute, with one apparatus discharging five gallons of water per hour under a pressure of 330 lbs. per square inch, the spray could be seen with the aid of a safety lamp at a distance of 30 yards, and it could be felt at 40 yards, whilst the readings shown by a standardised hygrometer proved that its influence extended beyond 80 yards, as shown by the following table :—

| | Wet Bulb. | Dry Bulb. |
|---|---|---|
| 5 yards behind spray ..... | 68·9 ..... | 73·9 |
| 20 yards in front of spray..... | 68·3 ..... | 71·2 |
| 30 " " " ..... | 68·5 ..... | 72·6 |
| 40 " " " ..... | 68·5 ..... | 73·0 |
| 50 " " " ..... | 68·5 ..... | 73·0 |
| 60 " " " ..... | 68·5 ..... | 73·0 |
| 70 " " " ..... | 68·6 ..... | 73·3 |
| 80 " " " ..... | 68·7 ..... | 73·6 |

Mr. SAINT also read before a recent meeting of the Colliery Managers' Association a paper, in which he went into the general question of water-spraying in mines, and from this paper we take the following extracts :—

It is now generally conceded that dry coal-dust constitutes a dangerous element in mines yielding fire-damp, or in which explosives are used. The Royal Commissioners appointed in 1891 to enquire into the effect of coal-dust in originating or extending explosions in mines, state in their report dated June, 1894, "the only effectual way of dealing with this source of danger, would be a satisfactory system of watering and wetting it." It is reasonable to expect that in the near future watering will be considered a necessity in dry and dusty mines, and it seems desirable to consider what are the best methods of watering to adopt under the various conditions obtaining.

As the air current travels through the mine its temperature, and, consequently, its capacity for moisture increases. It absorbs moisture, where obtainable, from all the surfaces with which it comes in contact, thus leaving the floor, roof, and sides, dry and dusty. This effect is most apparent in the winter months, when the difference between the temperature at the surface and that in the mine is greatest.

In order to counteract this drying effect various means have been tried—such as (a) strewing the roads with coarse salt, (b) heating the intake air and charging it with moisture, (c) watering.

Salt alone has been found to have only a limited effect, but it might be a useful adjunct to intermittent watering, as it would tend to delay the drying effect of the air current. Steam has been found effective for saturating the intake air, and thus preventing dryness in the mine in the summer time, but not so in the winter; besides, it has an adverse effect upon shale roofs, causing them to disintegrate, &c. As to the watering, several arrangements have been adopted with varying degrees of success. Amongst these the following may be mentioned :—(1) Movable tanks, containing water with perforated delivery pipes or revolving brushes at back, or in conjunction with force pumps, worked off the axles, to distribute the water; or with compressed air in the tank to force the water out against the floor, roof, and sides; (2) by hand with movable hose attached to stand-pipes or main supply; (3) with water and compressed air conducted in separate mains, and combined at the various points of delivery to form spray; (4) the spraying system by water alone.

Watering by means of movable tanks or hose-pipes will probably be found useful on branch roads or in situations where it is desirable to water and the air-currents are too feeble for the purpose of distributing spray; but, apparently, these methods could not be so economically or effectively applied in the main haulage or other roads, where there are suitable air-currents, as compared with that of fixed sprayers; besides, hand watering might be objectionable on working roads as tending to delay the coal traffic, in which case the watering would probably be neglected.

For the combined compressed air and water spraying system two pipe mains are necessary, one for the compressed air and the other for the water. Upon each of these pipes branches are arranged, at suitable intervals, with stop-cocks, back-pressure valves, &c., connected together in terminal nozzles. The air and water are turned on at the nozzle and adjusted until they discharge together in clouds of fine spray, which is diffused by the air-current, thus humidifying the air and damping the dust. The cost of the double line of pipes and combining nozzles may prevent its adoption.

The spraying system with water alone originated in South Wales. It was first applied in the year 1883, and is now used in about 40 large collieries in that district. It has also been introduced into mines in other districts, but, probably, owing to defects in the means hitherto adopted for producing the necessary fine spray, it has not been considered an unqualified success. The water required to operate the sprayers is obtained from a column in the shaft, and the mains are extended along the roads to be watered. Suitable branches or stand-pipes are fixed at intervals and provided with stop-cocks and various kinds of spray-nozzles. The distance between the nozzles is 30 to 60 yards, according to the velocity of the air-current and the fineness of the spray. The water pressures vary from about 80 lbs. to 640 lbs. per square inch. The waterman, whose duty it is to see that the dust is laid, travels the roads and turns on and adjusts each tap in succession; the spray discharges into the air current which distributes it on the floor, roof, and sides. After the sprays have run a sufficient length of time they are turned off individually, and spraying ceases until the waterman finds it desirable to repeat the operation. The sprayers are frequently affected by small particles of dirt entering the passages; the spray then ceases, and a jet or dribble of water falls to the floor; they cannot, therefore, be allowed to run long without examination and cleaning. It was important that the spray should be uniformly fine and free from solid water, otherwise the heavier globules and streaming water were deposited in close proximity to the sprayers, and there was unequal distribution of moisture. In some mines unequal and excessive watering affected the stability of the floors, and caused heavy expenditure in maintaining the roads. Leakages, coarse sprayers, and also dirty water should be avoided.

Hitherto the great difficulty had been to find a sprayer which would produce any required volume of uniformly fine spray, free from drops of water, and which could be put in operation without repeated adjustment, and run without close attention. I have long felt that, if this difficulty could be overcome, we should have made considerable progress towards the solution of the problem of effectively and economically laying the dust in coal mines.

With regard to the sprayer already described, Mr. Saint added that where it is preferred to run the sprays at intervals, they may be operated from the main valves automatically at fixed times, either by mechanical or electrical means, so that the watering need not necessarily be under the control, or depend upon the attention of a workman in the mine.

A lively and lengthy discussion followed, the criticism being most searching, as might have been expected from the company present. Mr. Saint finally replied to the whole of the criticism in a manner which showed that he had thoroughly studied the matter, and which satisfied all present that they had that day seen by far the best and simplest sprayer yet invented, and one which need not trouble a colliery manager as to the floor lifting.

The vote of thanks to Mr. Saint was spontaneous and unanimous, and in replying to it Mr. Saint said his main object was to enable the roadways of mines to be damped without risk of a heaving floor, or inconvenience to anyone travelling thereon, and at the least possible expense to the proprietors. He did not believe it was necessary to water the dust to the point of saturation to secure safety, and he felt confident his sprayer would amply meet all requirements, an opinion which was fully endorsed by all present.

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THE last report of the manager of the Star of the East Gold Mining Company (Murchison) is as follows :—"The lower level is being driven east and west on the lode; the stone in both ends is of low grade. In the stopes below the 50 feet level gold is seen occasionally. The two new Cornish boilers have been at work for the last fortnight, and give a full supply of steam. The mill has run full time, and 400 tons have been crushed for a yield of 153 ounces smelted gold."

HAYES and party, while working a rich claim beyond the White Feather, were accosted by some natives, who offered them some wonderfully rich stone for flour and meat. The specimens, worth many pounds, were purchased for a few pounds of flour. The natives, for a consideration, started to show the diggers the locality of the find, which is described as 40 miles north of the Hide-and-Seek Mine.

THE SEARCH FOR PETROLEUM IN INDIA.—The records of the Geological Survey of India contain in their latest issue an account of an experimental boring at Sukkur, made with a view to the discovery of petroleum. The work was carried out between October, 1893, and March, 1895, by Mr. T. D. La Touche, superintendent, Geological Survey of India. The author candidly admits that "there was no greater probability of obtaining oil at that spot than at any other in the neighbourhood of Sukkur or Rohri, for at that time no surface indication of the presence of oil had been found anywhere in Upper Sind." The search for petroleum in India has been singularly unprofitable, most of the sources being too small in yield to pay for working, while the richer deposits are, for the present, too far removed from means of transport to be commercially valuable except in Burma.

BELGIAN BLAST FURNACES.—The number of furnaces in blast in Belgium at the commencement of July was 29, while there were 49 furnaces out of blast at the same date. The total of 29 representing the number of furnaces in blast at the commencement of July was made up as follows :—Charleroi district, 11; Liège district, 12; Luxemburg, 6; total, 29.

# SOUTH AUSTRALIAN LETTER.

(FROM OUR OWN CORRESPONDENT.)

ADELAIDE, JUNE 11.

THE latest mining news in our colony is the discovery of another large seam of coal about 140 miles N.N.E. from Leigh's creek, and over 500 miles nearly north from Adelaide. The discovery was made by a party of men sinking an artesian bore for the Government, at a place on the stock route to Queensland called Kopperamanna. The boring apparatus was only a "jump drill," and consequently did not bring up a core as a diamond drill would have done, so that exact particulars of the thickness of the seam, &c., cannot be obtained as they were at Leigh's creek. The coal, however, is said to be similar, and fully equal to that at the latter place, and the seam is stated at about 40 feet in thickness at the depth between 840 and 880 feet. At 600 feet deep a seam of about 20 feet thick was passed through, intercalated with bands of clay; both seams, indeed, are thus intercalated with indurated clay. The analysis of the coal made by the Government Assayer was as follows :—

| | |
|---|---|
| Moisture at 100° C. .. .. | 6·94 per cent. |
| Ash .. .. .. .. | 23·21 per cent. |
| Coke (ash deducted) .. .. | 25·67 per cent. |
| Hydrocarbon .. .. .. | 44·18 per cent. |
| | 100·00 |

The coal is, like that from Leigh creek, a non-caking coal. It is, however, a clear-burning fuel, emitting scarcely a sign of smoke, and depositing no soot. Once ignited, it will not go out until it has burned right away to a light grey ash, leaving no cinders nor clinker. The locality is far in the interior, and until a railway is constructed to the locality it will not be of much use. The discovery is, however, of importance as showing the probable existence of an immense coal field extending all the way from Leigh Creek northward to Kopperamanna and to Kuntha Hill, a considerable distance (say), 50 or 60 miles further.

Our gold mining industry is looking up a little. One mine—the Mount Torrens—is said to have been sold in England, and it is one that, under good management, ought to pay. Negotiations are also pending for the introduction of English capital into three or four other good mining properties, as the Westward Ho! near Mannahill; Lambert's claim, near Nackara and Paratoo; the New Era, at Woodside, and one or two others. All those named have been sufficiently developed, to the depth of over 100 feet, and for a considerable length on the course of the lodes, to prove them to be permanent mines, only wanting machinery to make them payable. Others are likely to be brought forward soon. The Golden Slope West, near Mount Pleasant, is turning out a beautiful lot of rich specimens from a lode 5 feet wide at a depth of 90 feet on the underlay.

I was rather surprised to read a London cablegram in this evening's paper giving the outline of a paper to be read to-night at the Royal Colonial Institute by Sir W. C. F. Robinson, G.C.M.G., the Governor of West Australia, on the condition and prospects of that colony. If the forecast of his paper be correctly given in the cable message, His Excellency must be strongly affected with the West Australian fever. Anthony Trollope's advice to the Australians generally—"don't blow"—was never more needed than by West Australians. With many hundreds on the verge of starvation, Sir W. C. F. Robinson says "there are no more contented and prosperous people south of the Equator than those of West Australia." Speaking of the gold discoveries he expresses his "belief that the highest hopes entertained of them will be realised." As a matter of fact, the faintest hopes of thousands who have gone there to search for gold, and have spent all their money and long weary months in the search, have not been realised. His Excellency goes on to say that "some estimated the value of the output would amount to £95,500,000." The cablegram does not state how long a time is required to raise this quantity of gold, whether one year, or 10, or 50. At present, the output of West Australia is less than one-third that of Queensland or of Victoria, also less than that of New South Wales and New Zealand.

I do not deny that there are rich deposits of gold in West Australia, some, indeed, of extraordinary richness, but these are few and far between, generally patchy, and cannot be dependeo on to last. The average produce per head of those engaged in gold mining in West Australia must be very small. The consensus of opinion of the most experienced practical men I have met with who have spent months in exploring that country, is that there are very few rich prizes to a vast number of blanks. Even the richest patches hardly surpass many found in Victoria, New South Wales, and Queensland in the old days of gold digging. Then the cost of mining in West Australia generally is vastly greater than in the eastern colonies. In the course of my long experience I never knew a gold mining country where it was more necessary to exercise caution than in West Australia. Many practical men are of opinion that the Murchison district will eventually prove the most reliable for gold mining of any yet discovered in that colony. It may not have patches of extraordinary richness, but the returns will be more even and regular, and the cost of mining will be less, owing partly to the better water supply.

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A COLLIERY ON AN ISLAND IN THE FIRTH OF FORTH.—Operations have recently been in progress by Messrs. Hutton and Son on the Preston island, an island in the middle of the Firth of Forth, opposite Bo'ness and Culross, in the hope of being able to reopen pits which were sunk on the island early in the present century. When the Messrs. Hutton took possession of the island the sea was washing over the mouths of the three pits. They repaired the retaining walls and carried out some puddling with the most satisfactory results, and erected a small pumping engine on the original pumping pit. The explorations already show that the pumping pit had been sunk to a depth of 46 fathoms, and in this short distance four workable seams of coal are exposed. One of the seams is 9 feet thick, and the seam 12 fathoms under this is 5 feet in thickness. Under this again the well-known Fife seams—the Five-foot and Dunfermline Splint—are known to be lying whole. There is a depth of 13 feet of water surrounding the old pier built out from the island by Sir Robert Preston, so that the shipping of coals will be an easy matter.

A PETROLEUM MOTOR CARRIAGE.—The Hon. Evelyn Ellis has performed what is said to be the first journey on a petroleum motor carriage in India. The carriage, known as the Daimler, is one built by Messrs. Panhard and Levassor, of Paris, and the patent rights for the United Kingdom and the colonies are held by the Daimler Motor Syndicate (Limited), 49, Leadenhall-street, London. It consists of a neat and compact four-wheeled dogcart, with accommodation for four persons and two portmanteaux. It can travel at a speed of from 15 to 20 miles an hour, though the average is fixed, rather, at from 8 to 12, and the cost of the petroleum consumed is about ½d. an hour. There is said to be no smoke, heat, or smell, while the carriage runs quite smoothly and without any oscillation. Steering apparatus is provided, and the brake-power allows of a stoppage within a distance of about a yard. The journey performed by Mr. Ellis was from Hampshire to Datchet, the distance of 56 miles being covered in 5½ hours. Mr. Ellis was accompanied by Mr. Frederick R. Simms, the managing director of the syndicate.

# MEETINGS OF MINING COMPANIES.

## BRITISH NORTH BORNEO COMPANY.

### The property being improved and developed.—Great reduction in the deficit.

THE half-yearly general meeting of the British North Borneo Company was held on Tuesday, at Cannon-street Hotel, E.C.

Mr. R. B. MARTIN presided, and in moving the adoption of the report, said that in the year 1893 the deficit was £10 918, whereas in 1894 it was reduced to £2316; so that they were £8602 better off in 1894 than they were in the previous year. (Applause.) The accounts would, in the year under review, have shown a surplus but for the depreciation in the exchange. The company was always adding to the value of its property. When they entered into the possession of North Borneo they paid a certain amount down for it, but since then their capital year by year had been devoted to the development and the improvement of the property. After-events had, however, shown that the capital might perhaps, in some instances, have been better employed. Taking it altogether, there was no doubt that the work done and the money spent had gone to improve the capital value. As a matter of fact, if they were to give away the whole of their capital on the conditions of the land regulations, it would bring such an access to the improvement of the property that it would raise their income to a fabulous extent. It would be necessary, later on, to consider whether the expenditure on the country ought not constantly to be added to capital, rather than to be written off the profit and loss. Definite instructions had been given to the Governor in Borneo that they were not to have any deficits in future. They had told him he must provide, not only for depreciations, but also for the loss on exchange, and that the loss on exchange was to be considered as an integral part of the expenditure in the country, and that his estimate should also include the home expenses which were necessarily incurred on this side in the management of the company. The directors had reduced their remuneration by £200 a year, and as Mr. Crocker—whose salary was £800 a year—had resigned, the London expenses would be reduced £1000 annually. The imports were $1,329,000 against $1,116,000. The exports were $1,698,000 against $1,780,000. The reduction was due to the diminished sale of tobacco. The land sales last year were only nominal, but that was accounted for by the fact that in previous years very much more land in available situations was taken up than could be used, and these would have to be utilised before other sales were carried out. With regard to the telegraph, nobody for a moment supposed that the messages would pay the interest on the outlay, but the directors really believed that the opening up of the telegraph line would be a distinct improvement to the country. Altogether, they had every reason to hope that the road and the telegraph would prove of very great value. With regard to the railway, he believed the negotiations with the syndicate were practically at an end, as it had been found impossible to raise the money. The directors would like to have a light railway from the the coast over the gorge into the rich country beyond, for the line would pay interest. If they could not get anyone to take it up they would like to make it themselves, as they believed it would be a highly remunerative investment. It was proposed to start a sanatorium on the high mountain which was the great feature of the country, and that would be comparatively easily accessible from Calcutta, Singapore, Ceylon, and other Eastern stations. Steps were being taken to open roads in various directions in order to civilise the country. The Limbawan Mines had an output of 1000 tons of coal weekly, and in case of Eastern complications that might be found very useful. Chinese and Japanese were coming into the country in considerable numbers, from which the territory would no doubt be greatly benefited.

Sir CHARLES J. JESSEL, Bart., seconded the motion, which, after some discussion was carried.

The retiring directors and auditors having been re-elected, the resolution was passed authorising the board to subdivide each of the existing £20 shares into 20 shares of £1 each.

## OURO PRETO GOLD MINES OF BRAZIL, LIMITED.

### Proposal to increase the capital accepted.

An extraordinary general meeting of the Ouro Preto Gold Mines of Brazil (Limited) was held on Wednesday, at the offices of the company, 6, Queen-street-place, E.C., for the purpose of considering a proposal to increase the capital of the company.—Mr. E. A. PONTIFEX (the Chairman) presided.

The SECRETARY (Mr. Henry Ward) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—This meeting has been convened for the purpose of giving effect to the wishes expressed by some of our largest shareholders, that means should be at once provided to work the mine upon a more extensive scale than heretofore. The results of the working in the past have abundantly proved that we have a most extensive deposit of payable mineral, and, as is generally the case with mineral of this description, the quantity and richness improve as greater depth is attained. Mr. Gifford, our superintendent, entertains no doubt of being able to increase our raisings from the Passagem Mine from about 4000 tons per month, which we have been raising during the past year, to 5000 tons, assuming that it is provided with the proper machinery and appliances. This increase would alone be sufficient to very much increase our profits, as all the fixed expenses are already paid. Any surplus would, therefore, yield a larger proportion of profit. The experience we have lately had of the results of concentrating the tailings from the mill by means of Frue vanners has been so satisfactory that we are encouraged to increase considerably the number of these very useful, though somewhat costly, machines. We have already Frue vanners sufficient to treat one quarter of our produce, and Mr. Gifford estimates that the saving by them is quite 10 per cent. of the gold produce. Some 24 more Frue vanners will be required to concentrate the whole of the remainder of our tailings. In order to increase the quantity of mineral raised we shall also require to increase the pumping and winding power, and for the more energetic and economical working of the mine, we shall require some air-compressors and rock-drills. The machinery we propose to add, therefore, consists of: New pumping and winding machinery, at a cost of £2000; air-compressor and rock-drills, at a cost of £3000; 16 Frue vanners for the present 40 stamp mill, at a cost of £2000; a new 20 stamp mill, with eight Frue vanners, to replace our present worn-out mill of 32 Brazilian stamps, at a cost of £8000; and certain alterations and improvements to the shafts, which will cost another £1000; in all £16,000. These various improvements and additions, it is estimated, will result in an increase to our profits from £12,000 per annum to £24,000, and, therefore, we may expect to recoup our outlay in about 18 months. Manifestly it would have taken us some time to have provided for this outlay out of profits, and we did not think it would be fair that the interests of the present shareholders should be sacrificed to an unreasonable extent for the benefit of futurity. We have, therefore, quite concurred with the views of the shareholders who have approached us on the subject, that this capital expenditure should be defrayed by capital raised for the purpose. We, therefore, propose to increase the capital to £100,000—from the amount at which it at present stands, namely, £80,000—by the issue of 20,000 new shares at par, which will be offered to the shareholders in proportion to the shares they at present hold—that is to say, for every four shares now held they will be entitled to one share of the new issue. There can be but little doubt that every shareholder will take this opportunity of increasing his holding in a property proved to be so valuable; but I may mention that if any shareholder does not desire to take up his proportion, there are others who are prepared to take it up for him. If you pass the resolution to-day the success of the issue is, therefore, assured. With these observations, I beg to propose the resolution of which you have had due notice, viz.:—

> That the capital of the company be increased from £80,000, divided into 8',000 shares of £1 each, to £100,000, divided into 100,000 shares of £1 each, by the creation of an additional 20,000 shares of £1 each, such additional shares to be issued at such time or times and on such terms and conditions as the directors may prescribe.

Mr. EMILE DE WAEL seconded the resolution, which was then put, and carried unanimously.

A vote of thanks to the Chairman terminated the meeting.

## THE ROBINSON GOLD MINES, LIMITED.

### Statutory meeting.—Encouraging telegrams.

The first general (or statutory) meeting of this company, adjourned from June 24, was held at Winchester House, Old Broad-street, E.C. on Wednesday last, Mr. WILBERFORCE BRYANT presiding.

The ASSISTANT SECRETARY (Mr. B. O. C. Orlebar) having read the notice convening the meeting,

The CHAIRMAN said: Gentlemen—The statutory meeting was to have been held on June 24, but it was postponed because we had not received advices from the manager giving details as to the work performed and machinery required. At Coolgardie, as you know, the mails are not very regular yet, and the letters may have missed the steamer from Albany. We received a cablegram yesterday of a very satisfactory character. As you are aware, the company was registered on February 8 of this year. The prospectus was issued on February 11, and the capital necessary to supply the purchase consideration and working capital required by the purchase agreement was fully subscribed. The transfer of the property to the company was completed on March 13. As soon as the property was transferred Mr. Harper, a gentleman well known in Western Australia, was appointed manager. I may here say that one thing that influenced me in joining this board was that the Hon. H. J. Saunders, M.L.C., in Western Australia, who was intimately acquainted with this property, joined the board and subscribed his own money. That was evidence to me that he thought very well of the venture. He was well acquainted with the mine, he knew its prospects, and was very well acquainted with Mr. Harper, who also held a high opinion of the property. I may say that Lord Douglas, who has been a good deal in Western Australia, was acquainted with the property, and formed a very favourable opinion of it. He joined this board, and has also taken a considerable number of shares in the company. I think it will be very satisfactory to you to know that two gentlemen so intimately acquainted with Australian gold mining should have been willing to join this board, and put their own money into the company. It is good evidence that the prospects are bright. I may say that yesterday we received a telegram from Mr. Harper, the manager on the mine, in reply to the following telegram, which was sent from here by the managing director, Mr. Thompson, on the 12th inst.—"What is your opinion of new reef? Will it pay to work? Statutory meeting is to be held on the 17th; telegraph latest information not later than 16th day of July. Do not hesitate to telegraph fully." The reply that was received yesterday is to this effect:—"Main shaft is now down 110 feet. Ground is more wet at the bottom of the shaft, now being timbered; new reef payable in the shaft. I have reason to believe contains a large quantity of payable stone. Machinery will be required as soon as have sufficient water for milling purposes. Cocktail: East shaft sunk on the vein 104 feet; a reef 2 feet thick, low grade. Old prospecting shaft now 110 feet deep; a reef 2 feet thick. Quartz will average about 19 dwts. to the ton.—Burster shafts. The vertical shaft is 100 feet, giving an incline depth on the vein of 200 feet. In the bottom of winze a reef 3 feet thick presents a favourable appearance. Total length of the east drift in the 60 feet level is 94 feet. The quartz is 3 feet wide. Quartz will average about 3 ounces. Lease lying to the south. The situation of the property generally is excellent." I believe that Mr. Harper, from all that we hear of him from persons who are acquainted with him, is very cautious and conservative in his statements; therefore, I think that telegram may be taken as a very satisfactory account of the property.

Mr. F. A. THOMPSON, the managing director, said: Gentlemen—When the company acquired the property the only work existing upon it was the 60 feet shaft at this point (shaft No. 2 on the map). We struck what was called the No. 3 reef at 60 feet, and during the option which I held upon the property from the time I took it over from the original owners until it was floated into a new company we drove on this reef to the west 60 feet. The average thickness was about 2 feet 6 inches, and the average value 3 ounces, as reported by Mr. Backhouse, of the West Australian Gold Fields Company, and the other engineers who examined it. Since the property had been acquired by the company we have driven to the east on this same reef 94 feet, and Mr. Harper states that the average width of the reef is 3 feet, and its average value 3 ounces, so that we have one shoot of gold there 150 feet in length on a vein 2½ to 3 feet thick, with an average value of 3 ounces. Since the company acquired the property we have sunk this shaft another 40 feet, not upon the reef, but crosscutting the formation, and at the bottom we are now working upon a reef 3 feet thick, separate and distinct from the one which averages the 3 ounces. Mr. Harper, thinking that these shafts were too close together to develop the mine properly, started another one on the outcrop of the reef further to the east, which he has continued to a depth of 104 feet. The reef at the outset contained only 10 dwts. of gold, but at the bottom it contains 19 dwts., so that it has nearly doubled its value in a distance of 100 feet. In sinking the new main shaft at a depth of 74 feet we struck what Mr. Harper considers an entirely new reef, running 5 feet 6 inches to 6 feet in thickness, and as he says in the telegram, containing payable rock; whatever gold we find in that reef is in addition to the reefs discovered at the time of the flotation of the company, and claimed as representing its value. Immediately upon the organisation of the company the directors set in motion negotiations to acquire a block of ground to the south of the company's property, and located upon the dip of the reefs, thinking that this reef might change its angle of dip, and for that reason this ground became valuable. Since that, we have acquired that block from the original owners under very favourable circumstances. We have received a telegram from Mr. Harper that he has also acquired a block on the south-east from the Government direct, because of the work not being done upon it, so that instead of having 30 acres we now have over 50 acres. It is the intention of your directors to surrender these leases at the proper time, and to take two leases of 25 acres each under the provisions of the Gold Fields Act, so located as to control all the ground required, and surrendering such portions as are not productive, so that all the work which we do upon the reef will count as development work upon such of the new ground as is not productive at the present time, but which is being held for the purpose of deeper levels later on. In that way we shall avoid doing work on unproductive ground, and yet hold it for such time as it may be productive from the development done upon the reef. Mr. Backhouse, the mine manager of the West Australian Gold Fields Company, reported that something like 4000 tons of quartz had been developed at that time, and by the development work described we must have more than doubled that amount at the present time, because the level is exactly a continuation of that upon a shoot of gold of the same value, so that if Mr. Backhouse could measure up and estimate 4000 tons of ore being in sight at that time, there must be at least 7000 tons now. It is not estimated that we will get water in sufficient quantities to render it possible to work the mill until we have sunk our shaft at least 175 or 180 feet, which will probably be done within the next 60 days, for the reason that the ground is higher here than in other portions of the district, where water has been found at a depth of 157 feet. While it is a little disadvantage to have to sink further for water, we get a larger area in our reefs of free milling ore than they do who strike the water at 150 feet, so that an advantage will come to us in the end, because we shall have that much more of free-milling ore. As soon as the surveyed plan of the property made by Mr. Harper arrives, with sections, &c., I propose to outline the work which has been ordered to be done upon the property, and to send to each shareholder a plan with the sections marked on it, so that as telegrams come in from the mine showing the amount of work done you will be able to see at a glance exactly the situation.

Replying to Mr. FOWLER, Mr. THOMPSON stated that negotiations were pending for the placing of a portion of the 10,000 shares held in reserve, some at par and the remainder at a substantial premium. The directors hoped to receive fortnightly or monthly reports from the mine, will be published for the information of the shareholders.

A vote of thanks to the Chairman concluded the proceedings.

## DRAKEWALLS MINING COMPANY, LIMITED.

### Some valuable ground opened up.—Considerable reductions in the mine costs.

An ordinary general meeting of the shareholders in the Drakewalls Mining Company (Limited) was held on Thursday, at Winchester House, E.C., the chair being occupied by Mr. G. STEWART ANDERSON.

The SECRETARY (Mr. W. J. Lavington) read the notice convening the meeting.

The CHAIRMAN, in moving the adoption of the report and accounts, explained that the delay of a few weeks in holding the meeting was due to the very serious accident which a couple of months before had befallen Mr. Moses Bawden. The delay, however, had been in one way an advantage, for it had enabled Mr. Bawden to prosecute the discovery he had made in the mine, which had been communicated to shareholders in the report. Some little time ago he had been led to wonder whether fortune had not deserted them in regard to the obtaining of arsenic, but at the last moment Mr. Bawden had made a momentous discovery, which he was now following up. Mr. Lavington and he (the speaker) visited the mine about a month ago, as soon as Mr. Bawden was able to get about. They went all over the mine, and were very much pleased with everything they saw. All tended to confirm and corroborate their belief as to the satisfactory character of the management. Passing to the accounts, the Chairman said there was a considerable sum to the debit of the company, a great part of which had been incurred during the previous management. The period covered by the accounts had been one of difficulty in many ways. Heavy storms of wind and rain occurred during the month of November in the South of England, and the frost which came subsequently hindered the surface work considerably. This had militated considerably against the results of the operations, but, at the same time, the output of tin for the year was 63 tons, against 34 tons in the previous year. So far as arsenic was concerned, they had produced 319 tons, against 40 tons for the year ending in 1894. These, he thought, the shareholders would admit to be highly favourable results. (Applause.)

Mr. F. THORN seconded the motion for the adoption of the report and accounts.

Mr. MOSES BAWDEN said he was very pleased to be able to tell the shareholders that the hopes foreshadowed in his report had been subsequently confirmed, while the points stated then to be productive of tin and arsenic, were continuing their productiveness. From the present appearance of the winze he believed that this satisfactory state of things would continue, and, if so, as he had already stated in the report, they would probably have laid open about £10,000 worth of tin as reserves. As a matter of fact, taking the measurements as they were usually taken by a mine agent, if the winze continued to the 190 and to the 190 end west, and proved of the same value—and he saw no reason to doubt that this would be so—instead of laying open £10,000 worth of tin they would have laid open nearly £20,000 worth; or, more exactly, about £18,500 worth. The ground recently opened up had been worth in one place 72 lbs. of black tin, and in another 98 lbs. worth of black tin to the ton. He was quite satisfied with these results. During the year they had had a great deal of uphill work to contend against. They had had a most unprecedentedly severe winter. The storm on November 12 had flooded the mine, but notwithstanding this, the bottom of the mine had been worked in the winter for the first time for years. From what he could see, they had at last got over their difficulties so far as the returns were concerned, and he was looking forward to the future with considerable hope. (Applause.)

Mr. SLOPER asked for some further information as to the financial position of the company. It appeared that their debts amounted to £5500, while the calls unpaid would amount to £4495. According to that the company was £825 in debt. What prospect was there of clearing off this indebtedness?

Mr. BAWDEN, in reply, said that the mine during the past 12 months had been pretty well financed out of the returns of the mine. During the past winter the management had had exceptional difficulties to contend against, and the costs had been heavier than was expected. This state of things, however, would not continue.

The motion for the adoption of the report and accounts was then put, and carried unanimously.

On the motion of Mr. H. WILSON, the Chairman of the company, (Mr. G. S. Anderson) was re-elected to the board of direction.

The auditors, Messrs. Bolton, Pitt, and Breden, having been reappointed, the proceedings terminated with a vote of thanks to the Chairman and board.

## WHEAL KITTY MINE.

### The Flat Lode Intersected.

Wheal Kitty adventurers met on Friday in last week on the mine, Mr. HEARD presiding.

The accounts showed—Costs, £1,617; including labour, £1,147; bills, £406; dues, £10; Cornish Bank interest and commission, £45; and A. H. Jenkin, law charges, £7. The credits were £940—23 tons of tin, at an average price of £40 1s. per ton, showing a loss on the sixteen weeks of £562, increasing the balance against the mine to £766. The call of 4s. per 6,012th share, made March 22, is credited at £1,170. They owe £1,585, including £1,167 to their bankers; to merchants, £406; and for dues, £10. Against this, there are unpaid calls £523, and due on forfeited shares £270, leaving the adverse balance of £766.

Mr. G. C. HANCOCK, the purser, said there was an increase of 10 tons in the returns, and the receipts from this were £940, against £447 last account. Most of the arrears of calls were recoverable.

Captain R. HARRIS reported that the celebrated flat lode was intersected in Wheal Vottle shaft on Wednesday last, and was yielding stones of tin. He had no hesitation in saying that this was the most important discovery made in the mine for many years. The sinking had been somewhat interfered with by droppers, but he hoped very shortly to be driving east and west on the course of the lode as well as sinking, when doubtless good results would follow. They had driven the 60 east end on the south lode about 5 fathoms since the last meeting, and had also cut a few feet south; but not finding anything very encouraging, this end had been suspended for the present. The flat rods from the pumping engine to Wheal Vottle shaft have been completed, and were working satisfactorily. The stope in the back of the 60 east on Joe's lode had been fairly productive during the past quarter, and was now worth £10 per fathom for tin.

Mr. HANCOCK remarked that the discovery referred to was most important, but they must not think they were going to increase their return all at once. There was a certain amount of deadwork to be done. After that they could open up that property; then the returns would be very considerable, and the time was not very far distant when dividend cheques would be handed round. (Applause.)

A call of 2s. 6d. a share was made, on the motion of the CHAIRMAN, seconded by Mr. JOS. TEAGUE.

The CHAIRMAN remarked that the action for compensation for injuries, &c., to men in Wheal Kitty shaft recently, had been amicably arranged.

## NEWPORT ABERCARN BLACK VEIN STEAM COAL COMPANY, LIMITED.

### Better prices for the coal.—Full statement from the chair.

The 23rd ordinary general meeting of the shareholders of this company was held on Wednesday, at the offices, No. 12, St. Mary Axe, the chair being occupied by Mr. WILLIAM ALDWIN SOAMES.

The SECRETARY (Mr. A. R. Mollett) read the notice convening the meeting, and the reports of the manager and engineer.

The CHAIRMAN said: Gentlemen—In rising to move the adoption of the report and accounts, I cannot help saying that we are all very much disappointed with the result of the year's working. You will see that, as we have stated in the report, "a heavy squeeze" or settlement over the whole of the east district practically closed it for a time, and has necessitated continuous and expensive repairs. You have just heard the details of this "squeeze" in the report from the manager. The settlement has affected the whole of the east workings. It has affected the shaft, caused serious damage to the stables underground at the pit's bottom, and the walls and roof of the main roadways have been in a constant state of repair, which has very much retarded the getting out of the coal, besides necessitating a very large additional cost in labour and materials. The return air-ways, which are necessary for the ventilation of the mine, have also been nearly closed up by the "squeeze," and these have been and are being reopened, work which is, of course, entirely unremunerative. We have to pay a great deal for supporting the roof and opening up again these airways, and we get no return for the outlay whatever. You can understand that the unexpected and unusual difficulties that we have had during the last few months would have taxed the energy and skill of any manager, but we have been, unfortunately, in the position of having had four managers. Mr. Snape, after having been with us a few months, sent in his resignation, having got some other appointment. Then we got Mr. Tamblyn, who was for many years the manager of North's Navigation Collieries, and we believed that in him we had a most efficient, practical, and hard-working man. He impressed me very favourably at the board meetings, and seemed to grapple satisfactorily with the fault and the difficulties connected with the working of the mine. Unfortunately, after a few months he was broken down with illness, and he died within a few days. Thus we were left without a manager. Mr. William Thomas, of Gladys, who had been in charge of the colliery during Mr. Green's illness in 1891, was asked to come and undertake the charge of the colliery until we found a suitable manager. Having had experience of the mine before, when he was in charge, he was, of course, not like a stranger, and we asked him at the end of the financial year to write a short report comparing the present condition of the mine with what it was a few years ago, when he had charge of it before. I think you will be interested in his letter, and so I will read it to you. It is dated July 13, and he says:—"Respecting the difference in the underground workings of this colliery in 1891, when I visited it during Mr. Green's illness, and this year, I can say that in 1891 all the workings in No. 1 pit were in thorough good condition and excellent repair. Both east and west districts fully open, yielding large outputs, and no water to contend with. In 1895 the west workings are contracted to a small face, the greater portion having been cut out by a 'fault' that is now being penetrated. Nearly all the working face of the main east district has been closed up by a heavy 'squeeze,' that has brought down water from the roof, which, I need hardly say, at a distance of over a mile from the shaft, is very troublesome and expensive to deal with." Well, gentlemen, as regards the "squeeze," I don't think I have anything more to say, except that I believe it will come to an end after a time, and then I hope we shall be able to resume the normal rate of expenditure. If prices keep up we may then be able to meet you with a more satisfactory report. Still, I am no prophet, and I do not know how soon the effects of the "squeeze" will come to an end. We are entirely in the hands of superior forces in that matter, and all we can do is to trust to our manager, Mr. Wallace, to do the repairs as rapidly and as economically as possible, and when a better state of affairs comes, to try to earn a dividend again. If you will now turn to the balance-sheet, I should like to draw your attention to a few of the items. The ordinary and preferential share capital is the same as it has been for many years. The mortgage on cottages is, speaking roughly, £3000 more than last year. As to that, I may explain that we had certain cottages on which there were no charges, so that we raised a mortgage of £5000 upon them. There had been mortgages on those cottages before, but they had previously been paid off. In the course of the year we paid off other mortgages amounting to £2038, so that though we borrowed £5000, we are, in fact, only £3000 worse off than last year. The reserve account has had £1000 added to it, and the insurance account £500. Perhaps you will not understand the item paid to the Miners' Permanent Fund. The amount is arrived at in this way. The company pay 25 per cent. on whatever is contributed by the colliers to this provident fund. In the renewal and depreciation of machinery account, you will see that £2600 has been credited from the working account. It has been considered a reasonable sum for depreciation of machinery and plant, and is carried to their account every year. This last year we have not spent the whole of it by £209, so that our resources are increased by that amount. In regard to sundry creditors, the account does not look so satisfactory as I should have liked. We were short of money and had to get an overdraft at the bank. On the other side of the sheet the cottage account has been increased by the sum of £243. This was a sum spent on the construction of a retaining wall. There was no such sum provided for in the original building agreement, but these cottages are being built on the side of a hill, and we have found it necessary to have a retaining wall, and so we have paid for it this year. The capital account has further been increased by £707, for providing among other things the cost of the bridge over the line of the Great Western Company. The mine account, which has a little increased in some years, and in others been reduced, stands now at £13,000. I believe since the account was started that £13,000 has been paid off. The secretary says much more, but at any rate, I am within the mark. It is the intention of the directors, if you approve of their action, to close this mine account altogether. We do not intend sinking any further pit at present, so that we shall transfer the mine account to the capital account and close it. If ever we want to sink another pit we shall have to come to the shareholders and ask them to give us the money to do it. The fact is that in the past we have been trying to do more than we could do. When we sunk No. 3 pit, put in more machinery and plant, and built more cottages, we were, in my opinion, foolish in not coming to you for the necessary moneys. Instead of that we thought the coal mine was a veritable gold mine. We paid for everything right and left, and now bad times have come we are thoroughly cramped for want of money. At any rate, the intention of the directors now is to close the mine account—strike it out altogether—and transfer the £13,000 to the capital account. You may like some information about the tram account. That stands on a very different footing. The tram account represents the value of our trams and rails. We have 1089 trams, and the balance of that account represents the rails. As to the rope account I cannot give details, because that would be too long, but we have ropes of various kinds, and the £2322 represents the value of the ropes now at the colliery. The stable account represents our horses and harness. We have 186 horses—or, at least, we had at the 31st of March—and these and the harness account for the £5900. The wagon account stands at £13,657. We have 354 wagons, and 125 others which we purchased on the instalment system. If you turn to the working account, we see the result of the trouble we have been going through. The royalty and wayleaves, owing to the output being rather less, are about £1000 lower than last year. Wages stand at about £125,000. That is, of course, a very deplorable figure, but I think I have given you some explanation of the fact in the early part of my speech. The other materials used are about £600 less than last year, and the tram, rope, stable, and wagon account about £1200 more. The shipping and agency charges are practically a trifle less than they were last year. Rates and taxes, I am sorry to say, are over £1300 more. That is, I am afraid, due to our having the luxury of a County Council. I can only hope that we shall derive some benefit down there from the money the County Council have expended, but I am not so sure about that. The salaries are less than last year by about £275, because there has been no assistant manager to provide for. He was originally appointed to assist Mr. Green, who was not in very good health, and, subsequently, we thought we could manage with one young and energetic manager. We have, therefore, saved the under-manager's salary. The other items are much the same as last year. The subscription to the Albion Collieries, accident was authorised at the last general meeting. As to the other side of this account, you have heard from the manager's report the details as to the coal raised during the year. It is about 41,000 tons less than last year, and 81,000 less than the year before. But we have had good prices during last year, and there has been an increase of £8000 in the amount realised by the sale. We have made 25,450 tons of coke out of 40,450 tons of small. We got a little over 10s. a ton for our coke, about £800 less than last year. In regard to the cottage account, it would almost be a fac-simile of last year if it were not that we had to pay £275 more for rates and taxes. Nothing else remains to be remarked upon, except that the balance is £2027, and that the directors do not feel justified in distributing so small a sum. There is one other matter I wish to remark upon, and that is the auditors' report. One of the shareholders has criticised it, but to make the matter clear to you I think I shall have to explain to you how our accounts are kept. All the books of the company, except the pay-sheets, are kept up here. All the money which is paid away, except the weekly pay and the petty cash, which is necessarily spent at the colliery, is paid by the cheque of the directors. So that Messrs. Bagshaw and Co. have access to all the books of the company except the pay-sheets. Then I may say that all the books at the colliery are audited by Messrs. David Roberts and Sons, of Cardiff, whose name is a guarantee of the thoroughness with which their work is performed. It has been said that these auditors were not appointed by the shareholders, so we mean to put that matter right, and are going to ask you to elect some auditors to audit the books and accounts at the colliery. A further criticism has been made on the auditors' report, and is to the effect that the "apportionment of expenditure between capital and working account is as usual, based upon the figures prepared by the secretary and confirmed by the manager at the colliery, but, as on this occasion the close of the company's financial year occurred during the interval between the death of your late manager, Mr. Tamblyn, and the appointment of his successor, the figures have been confirmed by Mr. Evans, the engineer, who was in the service of the company throughout the year." That objection will be very largely got over, because, as I told you in the former part of my speech, we intend to close our capital account, and there will, therefore, in future, be no opportunity for the manager, secretary, or anybody else to charge anything to capital account. The Chairman concluded by moving the adoption of the report and accounts.

Mr. RICHARD HOLMAN seconded the motion.

Mr. FRANCIS was somewhat disappointed that the directors were not able to carry out further economies at the colliery. The expediency of closing the capital account was urged some years before, when the shareholders made a determined effort to save their property, but when this was done he hoped that the directors, at the same time, would see their way to wipe out the reserve accounts. These latter were an utter delusion, and served no purpose except to obscure the result of the year's working. Having regard to the value of the company's plant, he thought, moreover, that the sums written-off were very small. Another point upon which he desired to obtain further information was the position of the preference shareholders. He believed that the preference shareholders were entitled to 6 per cent. of the earnings of the company, and he assumed that, as the greater included the less, they were entitled to smaller percentages. Why was it that they were not entitled to the amount which the board proposed to carry forward? He saw from the balance sheet that the company had creditors to the amount of £13,879, and liquid assets to the amount only of £4299. This seemed to be a very serious position, and he did not remember that the Chairman had indicated how the board intended to meet these debts.

Mr. MORRO thought that the report appended by the auditors must shake the confidence of the shareholders a good deal in the accounts, especially considering that most of the books upon which the audit was made were kept in London. If there were anything at the mine which they wished to see, why could they not go down there. It was incomprehensible to him how a board of directors could put forth a balance-sheet with such a report attached, and yet expect to gain the confidence of the shareholders. He still felt strong dissatisfaction over the agency business, and he repeated again that it would be better if the company's coal came into the open market for competition. Perhaps the Chairman would be kind enough to state whether the coal was entirely exhausted in the west end of the pit, or whether the fault had been penetrated, and a fresh supply of coal reached.

Mr. EDGE asked why it was that the agency had cost £250 more than last year, while the output had been less. It was said that the auditors checked the pay-sheets at the colliery. Did the directors never check them? Passing on to criticise the directorate, the speaker said he wished there were more practical men on the board.

Mr. HAYNES asked whether it might not be possible to get better terms from Lady Llanover. There seemed, he thought, to be some room for retrenchment in the management, and, if so, he hoped the board would exercise it.

Mr. BAGSHAW said he had no desire that any misconception should arise as to the report he had appended to the balance-sheet. The company had honoured him by re-election for 20 years, and he might at once say he did not think anyone could have altered the accounts so as to give an equally true reflection of the company's position. He quite approved of the Chairman's suggestion that the amounts he had referred to should be carried up to the capital account. Reference had been made to the reserve accounts. These had been so called by the wish of the shareholders, who had objected to the phrase reserve funds, by which the items were formerly known.

The CHAIRMAN, in reply to the questions which had been addressed to him, said that it was easy to suggest in general terms that economies should be effected in the management, but unless they went into detail, he hardly thought the matter could be properly considered. It was suggested that the reserve accounts should be wiped out, but it would be seen that they could not have sunk pits, added new machinery, and built cottages without money. Perhaps it would have been wiser to have asked the shareholders to provide the necessary money, or—a course to which he was a good deal opposed—debentures might have been issued. The only other way was to transfer certain amounts from the profits to the reserve accounts. This had been done, and the shareholders had had their money's worth. Every shilling had been spent in sinking No. 3 pit, building cottages, adding machinery, or constructing the coke-ovens. As to the rights of the preference shareholders, they were entitled to 6 per cent. to be paid out of the "profits of the company available for distribution." For this year, he was sorry to say, they were *nil*. Mr. Bagshaw had himself explained the auditors' report, so that nothing further need be said in that matter. In regard to the agents' charges, the contract with the agents did not terminate until 1897, and the question could hardly be discussed until it was proposed to renew it. Messrs. Beynon got 3 per cent. on the actual moneys realised by the sale of the coal and coke, and the sum realised this year was rather more than last year. The coal in the west end was not exhausted, but the ground there was full of faults, and when they were driven through it was hoped that there would be plenty of coal there. A question had been asked as to the pay-sheets. Weekly pay-sheets were kept at the colliery, and these, like the other accounts of the colliery, were kept by a cashier with a staff of clerks. Subsequently they were checked by a professional accountant and the manager. As to the royalties, he did not suppose it could be reasonably hoped that Lady Llanover would concede any reduction in these.

The motion for the adoption of the report and accounts was then put and carried unanimously.

The retiring directors, Messrs. W. A. Soames and W. Lishman, were unanimously re-elected.

On the motion of Mr. WEEKS, Messrs. Bagshaw and Co., were re-appointed as auditors of the company in London, at the same remuneration, and on the motion of Mr. FRANCIS, Messrs. David Roberts and Sons were appointed auditors of the books and accounts at the colliery.

Mr. BELL, in moving a resolution of thanks to the Chairman for the courteous manner in which he had presided, said he thought the meeting had been too long, and that a great waste of time had been occasioned by the repetition of criticisms which had been urged for a great many years. Personally he should have been glad if the Chairman had felt himself able to promise that the question of economy, as raised by the first speaker, should be given sympathetic consideration. The company, he thought, was peculiarly constituted. Many people had a strong opinion that very large economies could be introduced into the working of the concern. The management cost £9000 a-year, and he could not help thinking that this could be very materially reduced without any loss of efficiency, and he should be very glad if the Chairman could be won over to that way of thinking, for without his support they stood a very poor chance of being able to effect any of those radical changes in the management of the colliery which had been attempted in previous years.

Mr. FRANCIS seconded the motion, congratulating the Chairman on the urbanity with which he had conducted the meeting, and expressing the hope that he would preside over many future meetings of the company.

The motion having been heartily carried,

The CHAIRMAN, in reply, said he thought Mr. Bell wrongly assumed that he was opposed to economical changes in the management of the company. He held, as a matter of fact, a large interest in the colliery, and he should be most pleased to consider any specific proposals for reducing the expenses. There was no good, however, in speaking generally of economy, and Mr. Bell at the board meetings had never put his finger on any particular item which he thought could be reduced. He had considered, indeed, the advisability of doing away with the London office; but he thought Mr. Bell rather exaggerated the cost of the London establishment. At the same time, as he said, both he and the board would be very pleased to consider any proposals for economy that might be brought forward.

The proceedings then terminated.

## AMANA (WENTWORTH) GOLD MINING COMPANY, LIMITED.

### Operations Discontinued.—A Gloomy Outlook.

An extraordinary general meeting of the above named Company was held yesterday, at Winchester House, for the purpose of considering the position of the mine and, if thought fit, of passing a resolution, or resolutions, with regard to the future of the company. Major-General SHAW-STEWART, presided.

The SECRETARY (Mr. W. T. Trevenen) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—Before dealing with the special business of this meeting, I will try to state, in as few words as possible, what has been done at the mine since we last met at the general meeting in December. By the middle of January the building over the site of the ore-treating plant was completed, and about five weeks later the machinery was erected, and was found on trial to work well. The treatment of the alluvial was begun in the first week of March, and the machinery did its work well, although difficulty was experienced owing to want of water, due to a severe drought. The mill was kept working continuously, except when temporarily stopped from that cause, until April 14, when the first clean-up took place. The result of that clean-up, 48 ounces of gold from 450 tons of alluvial, reached the board on April 20 and was at once published. The poorness of the return caused great disappointment—but it was attributed partly to the newness of the machinery, partly to scarcity of water, and partly to the extreme fineness of the gold, in consequence of which it was thought that a large proportion might have been lost in the tailings. I may mention that Mr. Blomfield, one of your directors, was at the mine while this first crushing was in progress, and he then regarded our prospects to be satisfactory and encouraging. Mr. Blomfield is here to-day, and I feel sure he will give all information in his power respecting the way in which the mine was being worked. You are aware that Mr. Collins, our late consulting engineer, left the company's service on the 31st March, and that Mr. Warnford Lock was then appointed to the post of superintendent. Mr. Lock arrived at Lucknow on the 9th May, and on the 16th he cabled the result of the second crushing, which gave 20 ounces of gold from 730 tons of ore, adding that he had shut down everything. That cablegram was published at once on receipt, and it is confirmed in Mr. Lock's letter of the same date (May 16), copies of which are in your hands. The letter is so full and so precise as to admit of no misunderstanding, and in view of Mr. Lock's position and reputation it must, I fear, be regarded as final so far as the alluvial deposits are concerned. Immediately on receipt of Mr. Lock's letter the directors felt that the proper course was to circulate it without delay among the shareholders, and to arrange for an extraordinary general meeting to consider the position. The directors also felt that, pending decision as to the ultimate fate of the company, all outgoings must at once cease, and with that object notice was given for the termination of all engagements, at home and abroad. In this connection it is a pleasure to be able to state that Mr. Lock, who had a year's engagement with the company, acted most generously in at once waiving his engagement, charging only one month's salary, in lieu of fee, for the work he had done. The local secretary in Australia, Mr. Tarleton, has also reported his intention to draw salary only to the end of May, although he could have claimed it until the receipt of notice from London. We have now to consider what steps must be taken at this crisis in the affairs of the company. With respect to our financial position, I may state roughly that, of the £20,000 original working capital, about £17,000 has been spent, the balance available in the bank being slightly over £3000. Since the date of the balance-sheet presented at the annual meeting in December, the final call of 5s. per share has been paid, and I am glad to be able to report that the item "calls unpaid" has been entirely extinguished. The balance due for stamp duty has also been refunded, and the company has now no debts to recover. The assets, therefore, consist of some £3000 in cash, in addition to plant and machinery, buildings, mining stores and office furniture. It is not easy to say what these items would fetch at a forced sale, but it is my intention to recommend for your adoption a course which would render unnecessary a forced sale of our assets. You are aware that the Wentworth Proprietary Company hold a predominant interest in this company, and before this meeting was held your directors considered it their duty to ascertain from the Wentworth board whether they could assist us in our difficulty. The reply from the Wentworth board, dated July 10, is as follows:—

I duly received your favour of yesterday's date, and the same was considered by my board at their meeting to-day. I now beg to reply that this company will be quite prepared, whenever desired by you, to give

without charge, the necessary office facilities and clerical assistance, the only charges being those of an out-of-pocket nature. My board are also willing, in the event of your company deciding to sell any of the material or plant on the mine, to instruct Mr. Lock to buy the same on behalf of the Wentworth or Aladdin Company at a fair valuation. I may further say that when the prospects of the Amana section justify the reopening of the present workings or fresh explorations being commenced, the parent company will be quite prepared and willing to grant any special facilities, and I think I may also state that the Aladdin Company will be quite prepared to do the same thing.—(Signed) J. A. Reslop.

Personally, I have no hesitation in recommending the acceptance of this offer. It appears to me that, provided our existing funds are maintained intact, we have everything to gain and nothing to lose by the proposed arrangement. To my mind, a strong argument in its favour is that, in accepting the Wentworth offer, we shall be acting distinctly in the direction recommended by Mr. Lock, our new superintendent. There is one point in Mr. Lock's letter of the 16th May to which I desire to refer. He there alludes to suggestions which had been made by some of the men thrown out of work to take the mine on tribute, paying a proportion of the gold got to the company, and bearing all the working expenses. In a subsequent letter, dated 29th May, Mr. Lock reports that there is no prospect whatever of any such arrangement being made. In the same letter Mr. Lock states that there is a great deal of material, both in the mine and in the mill, which the other companies can use, and which they will be glad to buy, and he strongly advises its immediate sale, on the ground that it would deteriorate if left where it is. I will conclude these remarks by formally moving the following resolution:—

That the shutting down of the mine by Mr. Warnford Lock, and the action of the directors in stopping all further expenditure for the present, be approved, and that the offer of the Wentworth Gold Fields Proprietary Company, Limited, with respect to the future of this company, as expressed in their letter of the 15th July, 1895, which reads as follows—(letter quoted)—be accepted, and that the directors be empowered to sell the plant and materials, and to do all other such things as may be necessary or advisable to give effect to this resolution.

The Earl OF KILMOREY, in seconding the resolution, said he was a large shareholder in the company, and he sympathised with the disappointment which would certainly be occasioned by the bad news which had come from the other side. At the same time, he was opposed to any forced sale, and under the circumstances he thought the best course would be to accept the proposal contained in the resolution.

A SHAREHOLDER asked how it was that a few months before Mr. Blomfield had telegraphed from the property that "success was assured."

Mr. BLOMFIELD replied that on April 16 last he visited the mine, and went very carefully into everything connected with the property, and consulted with the officers. At that date the plates were showing 7 dwts. of gold, but to be on the safe side he based his calculation upon 5 dwts., and sent the board a full report accompanied by a plan. At the time he certainly thought he was right in saying that "success was assured."

The Earl of KILMOREY explained that Mr. Blomfield had based his statement on information supplied to him at the mine, and he could have had no means of knowing that it was erroneous.

The motion was then put, and carried with one dissentient, and the proceedings terminated in the usual manner.

## REVIEW.

*Elektro Metallurgie. Die Gewinnung der Metalle unter Vermittlung des Elektrischen Stromes.* Dr. W. Borchers. (London: Williams and Norgate. 1895.) Part I.

A very few years ago the term electro-metallurgy would have been confined, as regards a practical art, to a few processes that were generally designated as galvanoplastic, and of which electro-plating may be looked upon as the type, whilst it was at the same time industrially by far the most important. Quite recently, however, a new industry has sprung up, which deserves more thoroughly the name of electro-metallurgy, meaning thereby the art of reducing metals from their compounds by means of electricity. The industry itself is so new that it has practically no literature, except what may be found in the form of papers upon one or other branch thereof, scattered throughout the records of the Transactions of scientific and technological societies.

The volume before us is, under these circumstances, especially welcome. It is practically an expansion of a similar work by the same author, and we have here only the first instalment of it. The work is to be divided into two parts. The first part consists of a brief introduction, and of the electro-metallurgy of the lighter metals—those of the alkalies, alkaline earths, and the earths, while the second part is to be devoted to the heavy metals. The author's comprehensive scheme is, as appears from his preface, to include "every metal which can be won by the aid of electricity." It must be noted that the author comes to his work particularly well fitted for the same, since, to considerable theoretical attainments, he adds great practical experience gained in the actual management of electro-metallurgical works.

Dr. Borchers commences with a short introduction, in which he briefly reviews modern theories on the electro-chemical constitution of matter, and their bearings upon electrolysis. He points out that the electrician handles a two-edged weapon; the electric current cannot only decompose compounds *per se*, but can also generate intense heat, which acts both by dissociation and by inducing direct chemical reactions. Accordingly we have a chapter on "Electro-thermal work," in which the author shows that the highest temperatures attainable electro-thermally are in the neighbourhood of 4000°C. or about 2000°C. higher than the highest temperature producible by combustion, and he makes a most important statement to the effect that he has succeeded in proving that *every oxide is reducible by carbon* at the elevated temperatures that can be electrically generated.

He considers the metals of the alkalies and alkaline earths as divisible, in their electro-metallurgical relations, into the three following groups:—

Group I.—Magnesium, Lithium, Glucinum.
Groups II.—Sodium, Potassium.
Group III.—Calcium, Serontium, Barium.

Among the metals of the earths aluminium holds a place by itself, whilst the rare metals (cerium, lanthanium, and didymium) are grouped together.

From the practical point of view the electro-metallurgy of aluminium is by far the most important, this subject occupying by itself over a third part of the book. It is thoroughly well handled, and gives a very complete account of the various methods in actual use, although the author does not seem to be fully acquainted with the most recent development of the Cowles process. Of the other subjects that are treated at length the most important practically is that of the electrical production of sodium and its alloys. We do not think that the author is quite fair in so positively denying all merit of originality to Vautin's work in this direction, and would remind him that a patent has actually been granted to Mr. Vautin in Germany—proof sufficient that his work does show novelty as well as utility. Indeed, perhaps the principal defect in the book is the author's excessive partiality towards his own ideas and inventions, and the difficulty that he encounters in recognising any merit in the work of others. This is not, however, a very serious blemish, and is, we presume, the price we have to pay for a book written by one who has been both an actual worker and a busy inventor and designer instead of a mere theorist. The book throughout bears the mark of a practical worker's hand, and nowhere more so than in its very excellent illustrations

# THE PRESENT AND THE FUTURE OF COOLGARDIE.

### Interview with Mr. George Seymour, M.Inst C.E., ex-President of the Institution of Mining and Metallurgy.

(BY OUR CORRESPONDENT.)

MR. GEORGE SEYMOUR is almost too well-known in London mining circles to need any preliminary introduction. Suffice it to say that he is, as the heading to this interview states, ex-President of the Institution of Mining and Metallurgy, of which he was the first President elected, and volumes could scarcely say more as to his ability, and the position which he has secured. Mr. Seymour, a couple of months ago, left London for Western Australia, to take up the position of consulting mining engineer to the West Australian Venture Syndicate (Limited). Since his arrival in Perth he has paid a visit of inspection to the Coolgardie gold field, and has kindly supplied our reporter with the result of his observations and deductions. Few better subjects for the interviewer could be imagined, for, armed with a portentous red morocco-bound book of field notes and sketches, Mr. Seymour proceeds in fluent fashion, and there is but little need to interject a query. Let him, then, tell his own tale, with as few interruptions as possible.

"My object in visiting Coolgardie was to inspect the Coolgardie gold field generally, and certain properties in particular, on behalf of the West Australian Venture Syndicate (Limited). In the course of my journey I had occasion to survey some of the principal mining centres, and visited the Twenty-five Mile, the Forty-five Mile, the Ninty Mile, Menzies, Siberia, and the Hands-Across-the-Sea districts, subsequently proceeding to Kalgoorlie, and the White Feather. In the course of my trip I had the opportunity of visiting a large number of mines, of which I availed myself as fully as possible.

"What were my general impressions? Well, although I had formed very favourable opinions from views I had heard expressed, and results which had been achieved, I am willing to admit that my experience has far surpassed any anticipations I might have previously formed. My reason for saying this is that, without taking into account the chief centres, such as those mentioned before, the almost universally mineralised appearance of the field was beyond any experience I had passed through. When we take into consideration that the Coolgardie gold field, as at present known, extends in a north and south line from Dundas to Lake Darlot, a distance of 300 miles, in a straight line, and an unknown distance—but certainly not less than 200 miles—from Southern Cross to the unknown eastern boundary, some idea may be formed of the extent of the field, covering, as it does, more than 60,000 square miles, or double the area of Ireland. When it is still further taken into consideration that this vast extent of country is only partially, and even then most imperfectly, explored, it is patent that but a small portion of its resources has even been glanced at. And when, also, the number of the inhabitants already known to be on the field is counted with, we come to a question not of so many persons to the square mile, but of so many square miles to each person. Even then it must be remembered that a very large proportion of the population is absorbed in the township of Coolgardie itself, whilst the other centres represent populations varying from 500 to 2000 people, within a radius of a few miles of the different townships.

"You ask me to describe the physical characteristics of the country. The Coolgardie gold field may, so far as my experience extends, be described as a vast series of flat and occasionally undulating plains, extending for hundreds of miles in any given direction, covered with low-lying scrub and occasional trees reaching to a height of 60 or 80 feet, diversified now and again by granitic upheavals and hills and dioritic intrusions, some of which, such as Mount Burgess, attain almost to the dignity of mountains, and form prominent landmarks to be seen for miles around.

"The most notable characteristic of the district is the almost universally mineralised condition, as evidenced by the scattered débris on the surface. Riding through the bush one cannot help noticing that the surface of the ground, over almost the whole of the district, is covered with angular and sub-angular fragments of limonite (hydrated oxide of iron) and of quartz, most of which would pass through a 3 inch ring, and which is evidently the result of the erosion of vast masses of quartz and iron during a period which, owing to the rainless character of the country, it would defy the most able geologist to compute. These masses of quartz and iron are, indeed, spread over the country like a mantle, and on a moonlight night you might fancy yourself, were it not for the temperature, in a country of sandy plains and thawing snows. This endless stretch of plain, so far as my experience goes, is almost everywhere intersected with auriferous lodes, varying in width from a few inches to as much as 15 or 20 feet, which, as a rule, cours in a north-west and south-easterly direction, with a dip or inclination generally towards the east, although there are naturally exceptions to both of the above generalisations, as in the case of the celebrated McAuliffe reef at the White Feather, which traverses the country in a north-east and south-west direction.

"The country rock or geological formation in which the reefs are found varies in character in different localities, but may be generally described as consisting of schists, but more frequently of hornblendic, chloritic, and, occasionally, talcose schists, the main bodies of which appear to follow the same direction as the metalliferous veins—i.e., north-west and south-east. These schists are often locally disturbed by the granitic upheavals and dioritic dykes, the general direction of which I have not as yet been able to average.

"In some cases the veins are situated in decomposed diorite and schists, a condition highly favourable to their mineralisation. In a word, the geological character of the country, as evidenced by the presence of the granites, schists, and diorites, could not be better constituted for successful mining operations, and, in this opinion, I feel assured I shall have the support of all practical men.

"As regards the characters of the veins themselves, they appear, so far as any man can form an opinion, to be continuous both in strike and depth, some of the reefs having been traced for many miles in a given line. And although it is true that the depths at present attained are relatively small, as compared with some of the historical mining districts of the Old World, still, the continuity of the reefs in this direction has been most satisfactorily proved by the recent discovery at the 380 feet level in Bayley's Reward Mine, where, but a few days ago, I had an opportunity of inspecting a fine lode about 8 feet wide, composed of white homogeneous quartz, well interspersed with gold, and coursing through a kindly country rock. As regards the metalliferous constituents of these veins, they may be briefly described as consisting, in the main, of white quartz, sometimes amorphous and sometimes crystalline in character, intermixed with oxide of iron, decomposed products of these iron ores, country rock, with occasional patches of talcose schist, slate, and a small quantity of pyrites, which will probably increase as the water level is approached. In addition to these minerals, specks of galena are occasionally found, as, for instance, in the Friday Mine, at Menzies, chrysocolla, or silicate of copper, together with malachite or carbonate of copper, are frequently observable on the outcrop of the lodes, and constitute a favourable augury, since they generally indicate, when found in gossan, some class of good mineral deposit beneath. I am also informed by Mr. Furman, who is associated with me in the Venture Syndicate, that he has recently discovered veins consisting of pure hematite and specular iron, towards the north of the Coolgardie gold field. Some of the veins, notably in the neighbourhood of the Ninety Mile, present large outcrops of this class, and as the district is heavily mineralised, there can be little doubt as to what is beneath.

"In many instances, notably in the Kalgoorlie district, the outcrops, so far as I have been able to observe, are not easily traceable, although this is not surprising in a climate whose paucity of rainfall is scarcely sufficient to denude the surface of the ground to any great extent; and some of the best mines in this district were, I believe, discovered without any index of this description.

"Reverting to the Ninety-Mile district, the case here is different, the situation of the lodes being marked by large and well-pronounced outcrops, traces of which are not wanting, even on the low ground, of the salt-pans or so-called lakes, which are scattered more or less all over the face of the country. Another class of crest or outcrop is perhaps the most prominent in traversing the country, which is, in great part, covered with sheets of coarse débris. It is not uncommon to find a small leader of quartz—perhaps not more than 6 inches to a foot in width—crossing the country in one of the orthodox lines of strike; and I have seen many instances in which, on following such a leader downwards for a distance of a few feet, it has developed into a lode from 3 to 4 feet in thickness. These indications are almost innumerable, and it is my impression, and that of my companion—Mr. Furman—that during the whole time we were travelling through the country we were rarely more than a mile distant from auriferous lodes. My individual opinion is, indeed, that if a plough were to be driven across the country from east to west it would be almost the exception to find a locality where its progress would not be frequently arrested by the occurrence of quartz leaders a few inches below the surface. This may appear a wanton exaggeration, but there is a world of truth in it.

"Now, to reply to your question in regard to what is styled the "water difficulty" at Coolgardie. Whilst apprehensive on this point prior to visiting the fields, I have at the present moment but little doubt that the difficulty will be overcome. In the first place, it must be remembered that the rainfall, whatever the average may be, has been running to waste for centuries on the Coolgardie field, since naturally there was no inducement to adopt any means for its conservation. This matter, however, appears to have received very prompt and vigorous attention from the West Australian Government, which deserves high credit for the energy it has displayed in this direction. A competent mine manager will, of necessity, make such arrangements as will enable him to avail himself to the utmost of any rainfall passing over his property. The ground generally seems to offer good holding for water, provided that the dams be properly designed and puddled. In the next place, there are the natural storages, such as the "soaks," so often found at the junction of the granite and the sedimentary rocks, where fresh water can generally be procured; and if these sources be carefully preserved and enlarged, supplies of water immensely in excess of the quantity now existing should eventually be forthcoming. There is, again, the question as to the expediency of placing boreholes in desirable localities—say, on or near the granite or dioritic intrusions. In this respect I think, however, that the Government should hold out stronger inducements even in the way of bonuses—either calculated at so much per foot sunk—or through more extended water rights. I am, however, doubtful so far as to the prospects of striking artesian water, but the geology of the country has not as yet been sufficiently well studied to enable anyone to form a reliable opinion on this point. Fourthly, and lastly, it is certain that large quantities of salt and brackish water exist at certain depths below the surface, in addition to those which are found at a slight depth in the salt pans or lakes. I need hardly touch on the elementary question of condensation, but I have no doubt that wherever an auriferous vein be found of sufficient importance to involve deep sinking, a sufficient supply of either salt or brackish water will be forthcoming for all battery purposes. In a country such as Coolgardie, which should afford large supplies of fuel for many years to come, the condensation of salt water for boiler and domestic purposes should not involve an excessive cost.

"You wish me to give my opinion concerning certain water supply and crushing schemes which have been placed before the public. Well, as regards the idea of pumping water from the Swan river to Coolgardie, it must be remembered that, in addition to the extremely costly plant required for pumping up water over so many hundreds of miles, the question of local depletion must also be considered. Such a scheme would be almost certain to meet with strenuous opposition from persons anxious to protect what they conceive to be local interests and conditions. As to the Esperance Bay scheme, it really seems to me a work of supererogation to pump salt water from a district which more than already contains an ample supply of that article, and which is incurring a heavy outlay in converting it into a potable fluid. With reference to the proposal to lay down a network of tramways over the field, and to convey the ore for crushing purposes to the Government railway, and thence to a point on the Swan river for treatment, I fear that the cost and difficulty of such a project would far outweigh any advantage which would be derived from it."

"Inasmuch as my attention has been called more particularly to the newer discoveries, I have as yet had comparatively little opportunity of examining the older and better established mines on the field; but from the opportunities offered me, I have no hesitation in saying that those which I have visited show every sign of being the forerunners of a permanent and prosperous industry. In the Coolgardie district proper, for example, the recent discovery before referred to, at the 380 feet level in Bayley's Reward Mine, assures the continuance of the lodes to at least that depth. In Hannan's district, the Great Boulder lode is remarkably promising in appearance, and without taking into consideration the battery returns which have been obtained up to the present, the appearance of the vein itself seems to me a sufficient guarantee of its character and continuity in the future. The ferruginous nature of the ore, its peculiarly kindly appearance, and the general stability of the lode, can hardly fail to guide the practised eye to this conclusion. It is also noticeable that the same character appears, as far as my observation goes, to extend throughout the district. Although I had not much opportunity of examining properties at Menzies, I was well satisfied with the general appearance of the lode there. Whilst it is true that in one shaft into which I descended the vein was somewhat thrown and disturbed by crosscourses, it was nevertheless strong and powerful, and the irregularity observable in it was probably due to its not having had time to settle down, owing to its proximity to the surface. At a greater depth, (say) 100 feet, I understand the vein had

settled down, and was following its normal course. In the Siberia district, again, the lodes in the Reward claim were also strong and well defined, varying from 6 inches to 3 feet in width, also exhibiting a healthy parallelism and continuity of strike.

"No, I don't think I have anything more to tell you at the present moment. I shall be happy at a later date to give you my fuller and more mature views on the geological and mining characteristics of the Coolgardie gold field. I may conclude, however, by stating, without hesitation, that, as I said at the commencement of this interview, the Coolgardie field far surpasses any anticipations I had originally formed, and it is my opinion that within a few years from this date there will be a larger number of dividend-paying gold mines working in this colony than in any other country in the world, whilst the success of Coolgardie appears to me to be already demonstrated beyond any possibility of doubt."

# THE BROKEN HILL PROBLEM.

## SULPHIDES AND THEIR TREATMENT.

(From the *Adelaide Advertiser.*)

THE production of silver-lead ore by the Broken Hill silver mining companies, the first of which commenced operations in 1885, has increased by leaps and bounds up to the present time. During the year 1894, although several of the companies were suffering reverses, brought about partly by the exhaustion of their richer oxidised ore bodies, and partly by the depreciated values of lead and silver, the aggregate quantity of ore raised reached a total of from 640,000 tons to 650,000 tons, representing a production of between 53,000 tons and 54,000 tons of lead, and from 14,000,000 to 15,000,000 ounces of silver. This lead constituted about 9 per cent. and the silver about 11 per cent. of the world's production These operations involved direct financial and trading transactions to the extent of nearly £2,500,000. They, therefore, form a most important section of the industries of Australia, and add very materially to the general prosperity of its people.

Practically the whole of the lead and silver hitherto produced by the Broken Hill silver mining companies has been derived from the very extensive bodies of argentiferous carbonate of lead and other oxidised silver ores met with in the upper portion of the main lode. These ores can be very easily and cheaply mined, and their nature permits of a comparatively simple metallurgical treatment, a direct smelting operation being all that is required to obtain their silver and lead contents in the form of marketable silver-lead bullion. The general average depth to which these oxidised ores extend may be taken as being between 250 feet and 300 feet from the surface, though in some of the mines they are met with at a depth of more than 500 feet, while in others they reach in places a depth of only a little more than 100 feet. Although these ore bodies are remarkable for their size and continuity they are being rapidly depleted by the present extensive operations. Already all of the companies except the Proprietary Company have had their output considerably reduced by the more or less complete exhaustion of such of this ore as could be profitably smelted at Broken Hill under the existing conditions, and it is extremely likely that if the Broken Hill silver mining industry is to be dependent upon the oxidised ores alone it will be reduced to comparative insignificance in the course of three or four years from the present time.

Below the oxidised ores, and in continuity with them, there exist immense bodies of sulphide ore, extending to depths which are as yet undetermined. They are by no means well explored, even in the immediate neighbourhood of the oxidised ores, for the various companies have, with one or two exceptions, followed the policy of confining their attention almost wholly to the more easily-treated oxidised ores, and have done very little towards opening up the sulphides. Although so little has been done in this direction, it can be with certainty inferred from such data as are at the present time available, that very large quantities of this ore exist, enough, at any rate, to sustain a large mining and metallurgical industry for a number of years. Almost the only statement as to the actual quantity now available that can be made is that, as the result of the limited amount of exploration work as yet accomplished by the various companies, an aggregate quantity of some millions of tons of this ore is at the present time opened up ready for mining and treatment. These sulphide ores are of a complex character, and consist essentially of a mixture of particles of galena (sulphide of lead) and zinc-blende (sulphide of zinc), together with more or less silicious gangue, the bulk of which is quartz and rhodonite. Both the galena and the zinc-blende contain more or less silver. The particles of these minerals are so intimately associated that anything approaching their complete separation by mechanical means is a difficult matter. The bulk of this ore exposed contains from 15 to 35 per cent. of lead, from 15 to 35 per cent. of zinc, and from 8 ounces to 35 ounces of silver per ton. That found in the vicinity of the oxidised ores is comparatively soft and porous, and probably contains larger proportions of silver and lead than the harder and more compact sulphides met with at greater depths. The deepest point at which it has been exposed is 1215 feet from the surface, where ore of a good grade was met with. This was at the Block 10 Mine.

The complex character of the sulphides involves the adoption of much more complicated methods of treatment than those employed in dealing with the oxidised ores. The successful application of these, in the face of the present low prices of lead and silver, has been regarded with a considerable amount of doubt, which has caused a very general want of confidence in the future of the Broken Hill mining industry, and has tended very much to retard its development. This feeling of uncertainty may be justified, to a great extent, by the difficulties encountered in dealing with similar ore in other parts of the world, as well as the negative results of the earlier investigations instituted by the various companies, with the view of determining the best method of treatment to adopt. These doubts may, however, be said to have been dissipated to a very great extent during the past 12 months, for the treatment of the sulphides has been commenced on a fairly large scale with profitable results, although only operations having for their object the recovery of the lead and silver associated with it, have as yet been undertaken; the recovery of the zinc and its associated silver being, so far, an unaccomplished, though unquestionably a possible, undertaking.

The chief difficulty in dealing with the sulphides is due to the association of such large proportions of lead and zinc with each other, as the presence of any notable proportion of either one of these metals interferes very much with the metallurgical operations employed in the extraction of the other, tending to increase very much the cost of treatment; consequently only the richer of the Broken Hill sulphides, or such of them as contain comparatively little zinc, can be profitably dealt with as silver-lead ores, and directly smelted as such in the ordinary manner. On the other hand, the presence of so much lead renders it impossible to deal with them directly as zinc ores with any prospect of profit. It is, therefore, generally recognised by metallurgists who have studied the matter, that any practical proposition for treating the sulphides, as a whole, must embrace a preliminary operation having for its object the more or less complete separation of the zinc from the lead. This separation may be effected by either chemical or mechanical operations. Most of the proposed methods of treatment, based upon chemical modes of separating these metals, involve the application of the following or a similar series of operations:—

(*a*) Treating the ore with suitable solvents, with the object of dissolving the zinc, and leaving the whole of the lead and silver in the insoluble residual ore.

(*b*) Recovering the zinc from the resulting solutions in the form of a marketable zinc product.

(*c*) Smelting the residual ore in the ordinary manner for the extraction of its silver and lead contents.

The methods of treatment, based upon the separation of the lead and zinc by mechanical operations, aim at dealing with the ore on the following lines:—

(*a*) Concentrating the ore, with the view of producing argentiferous lead concentrates, argentiferous zinc concentrates, and worthless gangue.

(*b*) Smelting the argentiferous lead concentrates for their lead and silver contents.

(*c*) Treatment of the argentiferous zinc concentrates in such a manner as to produce marketable argentiferous and zinc products.

The treatment of the sulphides by the chemical methods involves the adoption of not only such a series of operations as those first mentioned, but also others of a subsidiary nature, such as the manufacture or recovery of the solvents employed for extracting the zinc. Such a style of treatment is not well adapted for application anywhere but in an old-established centre of the metallurgical and chemical industry, where workmen who are skilled in similar operations are readily obtainable, and where the conditions generally are more favourable for the adoption of such operations than those obtaining in Australia at the present time. Dr. Schnabel, who was engaged jointly by the Broken Hill mining companies some three years since, to investigate and report upon the treatment of the sulphides (and who came from such a centre), gave it as his opinion that they could most profitably be treated in this manner. His recommendations led to the erection of experimental plant, but the results obtained gave so little promise of success that operations in this direction have been practically abandoned. It is, perhaps, worth mentioning here that large works were established in Swansea some years since for the treatment of this class of ore in the manner proposed by Dr. Schnabel. Other similar attempts have also been made in various parts of Europe. In no case have the results proved satisfactory from a financial point of view.

When considering the treatment of such ore as the Broken Hill sulphides, its concentration with the view of mechanically eliminating the worthless gangue and separating the galena and blende from each other in order that they may be dealt with as lead and zinc ores respectively in the ordinary manner, is the method which first suggests itself. The earlier attempts to treat the Broken Hill sulphides were based on these principles, and a very considerable sum of money was spent in endeavouring to apply them. But the intimate association of the constituent minerals caused many difficulties, and the earlier concentrating operations were attended with so little success that the treatment of the sulphides in this manner was for a time very generally regarded as hopeless, and chemical operations were looked to for the solution of the difficulty. During the past 18 months, however, new efforts to concentrate the ore have been made, and they have been so successful that the initial difficulties in connection with the profitable treatment of the sulphides may be said to have been overcome.

The first operations that met with any measure of success were those undertaken by the South Company early in 1894. This company having practically exhausted its carbonate ore, then attempted, on the advice of the writer, the concentration of its large reserves of sulphide ore with the view of shipping the resulting lead concentrates to Europe. This sulphide ore contains from 30 to 40 per cent. of lead, from 16 to 40 per cent. of zinc, and from 6 to 8 ounces of silver per ton—a grade of ore which up to that time had been regarded as valueless at Broken Hill. From 1000 to 1200 tons of this ore is now being dealt with weekly, producing about 400 tons of lead concentrates containing 70 per cent. of lead and from 8 to 10 ounces of silver per ton—a class of material which is eagerly bought by the European smelters. Early in the same year the Block 14 Company, having exhausted such of its oxidised ores as could be profitably smelted at Broken Hill under the existing conditions, also, on the advice of the writer, took up the treatment of the sulphides, and with that object erected a concentrating mill at Broken Hill, which has been in operation since the end of last May. The sulphide ore dealt with by this company contains from 20 to 25 per cent. lead, 20 to 25 per cent. of zinc, and from 14 to 20 ounces of silver per ton. As the concentrates produced from this class of ore can be more advantageously smelted at the coast than otherwise dealt with, a smelting works was erected at Port Adelaide at the same time, and these have been in active operation since last July. The quantity of crude ore now dealt with by this company is about 1000 tons weekly, three-fourths of which is sulphide ore. The chief feature of the concentrating plant of these two companies is the efficient jigs invented by Mr. H. R. Hancock, superintendent of the Wallaroo and Moonta Mines, and much of the success which has attended the concentrating operations is due to their adoption. More recently the Block 10 Company erected a small concentrating plant, and is now treating about 400 tons of crude sulphides weekly with profitable results. The lead concentrates produced, which contain about 68 per cent. of lead and 35 ounces of silver per ton, are being shipped to Europe, and a portion of the secondary products are sold to local smelting works. The erection of further concentrating plant is under consideration, and it is more than likely that this company's operations will be very largely extended in the course of a few months. At the Proprietary Company's mine the treatment of the sulphides on a practical scale has not yet been seriously undertaken; it is, however, probable that the erection of plant for dealing with them on lines similar to those adopted by the Block 14 Company will be commenced almost immediately.

Although only a partial treatment of the sulphides, by which a large proportion of their lead contents and such of the silver as is associated with it is recovered, has been as yet accomplished, the advances which have been made are of very great importance; for the initial difficulty, that of dealing with them at all with a profit, having been overcome, the further treatment will naturally follow. The concentrating will gradually become cheaper and more perfect as experience is gained and operations on a larger scale are undertaken; the treatment of the products will be improved upon, and there is more than a possibility that much of the zinc and the silver associated with it will ultimately be recovered and become a source of profit.

It is, of course, not to be expected that the poorer sulphides will yield large profits when dealt with on a small scale, and such of the Broken Hill companies as are unable to undertake extensive operations will not be able to cope satisfactorily with the treatment of the sulphides single-handed. It is, therefore, very evident that a combination of the Broken Hill Mines in such a manner as to form three or four strong companies is essential to the best interest of all concerned, and would add very much to the durability and profits of the Broken Hill mining industry.

If a small sample of the Broken Hill sulphide ore be crushed not too finely, and then vanned on a shovel in the ordinary manner, it will be found that its constituent minerals will separate from each other more or less completely. The galena particles set free by the crushing will form the major portion of the "heads," blende particles will constitute the bulk of the "middlings," and the "tails" will be chiefly made up of particles of blende and gangue. On examining the "heads" closely it will be seen that many of the particles of galena have a little blende adhering to them, a portion of which may be separated by crushing this product finer. Similarly, a little galena will be found to be associated with the blende and gangue particles constituting the "middlings" and "tails," which may be partially eliminated by recrushing and revanning these products. The residual material in each case may be repeatedly dealt with in this manner until it is reduced to so finely divided a state that it cannot be effectively vanned; even at this stage a really close separation is not attained, although, with every succeeding treatment, purer products are obtained. Such experimental operations as these illustrate very clearly the manner in which the intimate association of the constituent minerals of the Broken Hill sulphides affects their concentration, and show that fine grinding is absolutely essential for the production of galena and blende concentrates sufficiently pure to be dealt with as lead and zinc ores most advantageously.

As implied in the first article on this subject, the concentration of the sulphides is carried on, at the present time, with the sole object of producing the largest possible proportion of galena concentrates sufficiently free from blende to constitute a good smelting material, the recovery and treatment of the blende not having yet been attempted on a practical scale. Although the production of the largest proportions of galena concentrates necessarily involves fine crushing, the extent to which this may be carried practically is limited, as fine grinding causes the production of correspondingly large proportions of very finely-divided ore which forms that *bete noir* of all concentrating operations, technically termed slimes. In dealing with such ore as the Broken Hill sulphides, the producing of any large quantity of slimes is objectionable, inasmuch as they cannot be effectively concentrated, and they are more difficult and costly to deal with by other available methods of treatment than the crude ore itself. In actual practice it is found that the best results are to be obtained by dealing with the ore in two stages. The crude ore is first crushed to pass through sieves with holes from 1-10 inch to 1–16 inch in diameter, and then concentrated with the object of producing galena concentrates and secondary products. With the latter more or less galena that may be profitably separated is still associated. These secondary products are then crushed to pass through sieves with holes from 1-16 inch to 1-25 inch in diameter, and reconcentrated for the production of a further quantity of galena concentrates. Dealing with the ore in this way sets free the majority of the galena without converting an excessive proportion of it into slimes, and permits of the production of galena concentrates containing from 50 to 70 per cent. of lead, and from 6 to 15 per cent. of zinc, which is a class of material that may be smelted as silver-lead ore without difficulty. The crushing plant used consists of ordinary rock-breakers and Cornish rolls, fitted with trommels and raff-wheels in the usual manner. Large steam stamps like those used in the Lake Superior district for crushing copper ores were adopted for the earlier Broken Hill concentrating mills. They, however, proved unsuitable, as their capacity was small and the cost of crushing very high compared with the cost of crushing by rock-breakers and heavy Cornish rolls. At the Block 14 Mine it is found that a rock-breaker and a pair of 33 inch Cornish rolls will crush about 10 tons of average sulphide ore per hour to pass through a sieve with circular holes 1-10 inch in diameter. At the South Mine 27 inch Cornish rolls are used, and the rate of crushing is 6 or 7 tons per hour. The following figures will give an idea of the extent to which the crushing effects the division of the ore when screens with 1-10 inch circular holes are employed:—

70 to 80 per cent. will pass through a screen with 16 holes per linear inch.

55 to 65 per cent. will pass through a screen with 25 holes per linear inch.

40 to 50 per cent. will pass through a screen with 40 holes per linear inch.

30 to 40 per cent. will pass through a screen with 64 holes per linear inch.

4 to 6 per cent. is reduced to very fine slimes.

As might be expected, the ores from the various mines differ considerably, some requiring to be crushed much finer than others in order to yield a large proportion of fairly clean concentrates. On the whole, ores containing a high percentage of blende are in every way the most difficult to deal with; they, however, generally speaking, contain the most silver, and, consequently, give the most profitable results, even though they yield comparatively unsatisfactory percentage returns.

At the Block 14 and the South Mines the concentrating operations are as yet confined to coarse and fine jigging, Hancock's patent percussive vanning jigs being employed. The essential feature of these jigs is a suspended sieve of large dimensions (20 feet by 3 feet 2 inches) moving in a strongly-constructed hutch. An adjustable vanning motion is given to this sieve by means of suitable mechanism placed underneath the hutch. These jigs have a large capacity, each being capable of dealing with 5 or 6 tons of ore per hour. With them the sizing of the ore, which renders operations with other classes of jigs so complicated, is unnecessary, for they will, as ordinarily adjusted for treating the crude ore, concentrate effectively the whole of it as it comes from the crusher, except such as is fine enough to pass through a sieve with 60 meshes per linear inch. This fine "material" is kept suspended in the water to a greater or less extent by the strong vanning motion required for the jigging of the larger particles. The bulk of it leaves the jigs suspended in the overflow water, and is caught in a series of settling tanks in the form of sands and slimes.

The policy pursued in conducting the concentrating operations at the Block 14 Mine is that of recovering as much of the lead and silver contents of the crude ore as is possible in the form of galena concentrates containing an average of not more than 15 per cent. of zinc. The crude ore is crushed to pass through sieves with 1-10 inch holes, and the secondary products are crushed to pass through sieves with 1-16 inch holes. The average concentrates produced contain about 55 per cent. of lead, 14 per cent. of zinc, and 25 ounces of silver per ton. These are smelted at the company's smelting works at Port Adelaide. The middlings produced contain from 8 to 11 per cent. of lead, from 30 to 35 per cent. of zinc, and from 7 to 12 ounces of silver per ton. These are stacked for future treatment. The tailings contain from 4 to 10 per cent. of lead, from 20 to 25 per cent. of zinc, and from 5 to 10 ounces of silver per ton. The bulk of these are used underground for filling the worked-out stopes. The fine slimes contain about 30 per cent. of lead, 20 per cent. of zinc, and from 20 to 25 ounces of silver per ton; they are smelted at the company's smelting

works. Plant for concentrating the sands and coarser slimes is now in course of construction, experimental operations having shown that they can be advantageously concentrated.

The cost of concentration at the Block 14 Mine is about 3s. 6d. per ton, which sum includes all handling of ore and products to and from the mill and the loading of the concentrates and slimes into railway trucks ready for shipment to the smelting works.

The operations at the South Mine are very similar to those carried on at Block 14 Mine, except that cleaner concentrates have to be produced, as they are shipped to Europe, where material containing more than 10 per cent. of zinc cannot be advantageously disposed of.

At the Block 10 Mine the crude ore is crushed to pass through sieves with 10 meshes per linear inch, and the secondary products are crushed to pass through sieves with 20 meshes per linear inch. The concentrating operations embrace coarse and fine jigging, for which plunger jigs are employed, and the treatment of the "sands," for which vanners having a side discharge are used. The concentrates being produced for sale are very clean; they contain from 65 to 70 per cent. of lead, about 8 per cent. of zinc, and from 35 to 40 ounces of silver per ton. They are now shipped to Europe. The fine crushing involves the production of a large proportion of fine slimes, which contain about 30 per cent. of lead, 25 per cent. of zinc, and 50 ounces of silver per ton. These are sold to the local smelting works.

The treatment of the galena concentrates involves a great change in the smelting operations of the Broken Hill companies. In dealing with the oxidised ores the proportion of bullion produced and the weight of the fuel used for smelting was small compared with the quantity of ore dealt with. Under these circumstances it was found more advantageous to smelt the ore at Broken Hill and pay the freight on the bullion and fuel than to carry the ore to the coast and smelt it there. With material producing so large a proportion of bullion as the galena concentrates the advantage lies in the other direction, and the shipment of ore to the coast is the more profitable course. It is, therefore, safe to assume that during the next two or three years concentrating operations will gradually take the place of the Broken Hill smelting operations to a very great extent, and that smelting operations at the South Australian ports will be largely increased. As the conditions obtaining in England and in some parts of Germany, and the systems of smelting pursued there are peculiarly suited for the economical treatment of clean lead ores, certain European smelters are able to offer prices for galena concentrates containing a very small percentage of zinc that will compare favourably with the returns obtainable from local treatment so long as low freight rates are obtainable. It is, therefore, likely that a considerable portion of the clean galena concentrates produced by the companies possessing no coast smelting works will be shipped to Europe, and that a very considerable shipping trade in connection therewith will grow up. Already a very respectable beginning in these directions has been made, and something like 800 tons of concentrates is now being sent from Broken Hill to the Australian ports every week, about half of which is smelted locally, and the remainder shipped to Europe. Our local conditions and methods of smelting are, however, well adapted for the treatment of the more impure concentration products; it is, therefore, likely that only the purest portions of the galena concentrates will be exported to Europe.

The smelting of the galena concentrates and other products resulting from the concentration of the Broken Hill sulphides is now carried on at the Block 14 Company's smelting works at Port Adelaide and at the Dry Creek smelting works. At the Block 14 smelting works the method employed for dealing with this material is that technically known as the roast reduction process. Four 12 ton roasting furnaces and two blast furnaces are now in constant operation at these works, and the quantity of ore smelted is from 420 to 450 tons weekly. As the policy pursued in conducting this company's concentrating operations results in the production of concentrates containing a considerable percentage of zinc, the average zinc contents of the material dealt with is very high. However, by fluxing the ore in such a manner as to produce slags of a certain composition the treatment presents no difficulties, and the smelting losses are no heavier than those incurred in dealing with the more easily-treated carbonate ores. By dealing with the sulphide ores in the manner described this company has been able to treat successfully material of a very low grade, notwithstanding the current low prices of lead and silver.

The operations described represent very nearly all that has been accomplished on a practical scale in connection with the treatment of the Broken Hill sulphide ore. Briefly put, the position now is that by these operations from 60 to 70 per cent. of the lead and from 40 to 60 per cent. of the silver contained in the average ore dealt with is profitably recovered and rendered marketable. And, at the same time, the greater part of the remaining lead and silver and the bulk of the zinc has been concentrated into a product which is readily available and in a good form for treatment when a method of dealing with it is determined upon. The main question in connection with this matter is what class of ore can be profitably dealt with at the present time by the operations now adopted. It is difficult to answer this question definitely, as much depends upon the cost of mining, the extent of operations, the prices of lead and silver, and other considerations quite foreign to the treatment. Given, however, reasonably cheap mining and extensive operations, it should not be difficult to make sulphide ore containing 20 to 25 per cent. of lead, 20 to 25 per cent. of zinc, and 14 ounces of silver per ton give profitable returns. It is to be remembered that numerous improvements will naturally follow extended operations, and more profitable results may be looked for hereafter, altogether apart from what may be derived from the recovery of the blende and the silver associated with it, from which much may be hoped.

The chief difficulties attending the extraction of the bulk of the lead and the silver associated with it from the Broken Hill sulphides having been surmounted, and their treatment having become a firmly-established and profitable undertaking, the recovery of their zinc contents will follow as a natural sequence sooner or later. A careful enquiry into the various conditions and circumstances affecting this matter will show conclusively that the profitable extraction of a large proportion of the zinc and of the silver associated with it presents no serious difficulties, and that operations for accomplishing this object might be established in Australia with every prospect of success. Actual experience in dealing with many thousands of tons of this sulphide ore has demonstrated that it is possible to cheaply concentrate much of it in such a manner as to recover a large proportion of the zinc contents in the form of blende concentrates containing from 40 to 50 per cent. of zinc, 8 to 21 per cent. of lead, and from 8 to 16 ounces of silver per ton. These concentrates contain a higher percentage of zinc than much of the blende dealt with at many of the European zinc smelting works, and the treatment of similar material, containing a comparatively high percentage of lead (from a zinc smelter's point of view) has long been made a specialty at one or two of these works, where the bulk of the lead and silver, as well as the zinc, is recovered in the manner hereafter described.

Zinc is volatile at a bright red heat, and zinc smelting as ordinarily carried on is essentially a distillation process. As applied to the treatment of blende (sulphide of zinc), the modern process of zinc smelting consists of the following operations:—The blende is first carefully roasted in proper furnaces with the object of eliminating the sulphur and converting the zinc contents into oxide of zinc. The roasted ore is then mixed with more or less coal or coke dust, and subjected to a white heat in fire-clay retorts, to which suitable condensers are attached. This brings about the reduction of the oxide of zinc to metallic zinc, and it passes from the retorts in the form of a vapour into the condensers, in which it collects as molten metal, and from which it is tapped into ladles at suitable intervals and cast into moulds. The non-volatile constituents of the ore, among which is the greater part of the lead and silver present, remain in the retorts in the form of a more or less coherent residue, from which the lead and silver may be recovered by dealing with it as a silver-lead ore. The retorts employed, and the furnaces in which they are heated vary considerably in size and shape; all are, however, derived from two distinct original types. One of these was first adopted in Silesia, and the other in Belgium, in which country zinc smelting was first established as a permanent industry. The Silesian furnaces ordinarily carry from 32 to 40 retorts, each of which will contain from 120 to 200 lbs. of ore. The Belgian furnaces carry from 100 to 200 retorts, each capable of holding from 40 to 60 lbs. of ore. The retorts in either case are usually charged and worked off once every 24 hours. In order that the ore may be readily heated throughout to the temperature required for its reduction, it is necessary that the heat should not have to penetrate any great body of the ore mixture, and it is also essential that the retorts should be thin; retorts of more than a certain size cannot, therefore, be effectually employed, and it is probable that the extreme limits in this direction consistent with the most economical treatment of the ore have been attained at the more modern zinc smelting works. These limitations are apparently inseparable from zinc smelting, and the necessity of using small and comparatively fragile vessels for distillation renders it a costly operation compared with most metallurgical operations at all extensively applied. Most European zinc smelters object to deal with zinc ores containing more than 3 or 4 per cent. of lead, as this metal is said to cause an undue wear and tear of the retorts and furnaces, and it also affects the quality of the zinc produced. These are, however, mere technical disadvantages, which, although perhaps involving a heavier cost of treatment, do constitute any real difficulties, as is shown by the fact that at certain Silesian zinc works, and also at the Freiberg works, in Saxony, zinc ores containing lead and silver are regularly dealt with, and the latter metals are recovered by smelting the retort residues along with silver-lead ores in the ordinary manner.

There is nothing to prevent the treatment of the Broken Hill zinc concentrates either in Europe or Australia by the method adopted at the above-mentioned works, the whole matter being simply a question of the cost of freights and treatment, as compared with the value of the metals recoverable. At the present time there is no inducement for the exporting of the crude concentrates direct to Europe, for most of the zinc smelters on the sea coast confine their operations to zinc smelting pure and simple; they consequently purchase the purest zinc ores obtainable, and avoid ore the treatment of which involves the application of the complicated operations of lead and silver smelting. All attempts to sell the Broken Hill zinc concentrates in Europe at adequate prices have, therefore, so far failed. It is, however, quite possible that certain smelters may be induced to take up their treatment. The forcing of the sale in this way has the disadvantage of bringing about the disposal of this product at unduly low prices, and taking into consideration that Broken Hill could in a short time produce enough of these concentrates to swamp the limited number of zinc works to which they could be transported by direct shipment, it would seem that exporting them to Europe would only be a temporary expedient which would sooner or latter have to be followed by the establishment of zinc smelting works in Australia.

All the natural conditions (such as cheap coal, &c.) for zinc smelting exist in Australia, and the only noteworthy uncertainties attending the smelting of the Broken Hill zinc concentrates here are those connected with the disposal of large quantities of zinc in the European markets. The measure of profit with which they may be dealt with is difficult to judge at the present time, but a careful estimate based upon the conditions now obtaining goes to show that there should be no difficulty in producing from these concentrates marketable zinc for £10 per ton for dealing with them at Port Adelaide or Port Pirie. The price of zinc during the last 20 years has ranged between £13 and £26 per ton in London. It is now over £13 per ton. In making the above estimate nothing is reckoned for the retort residues, which would contain sufficient lead and silver to render them a most valuable by-product, the worth of which alone would constitute a fair profit on the operations.

Another practicable method of dealing with the zinc concentrates is that of roasting them with the object of eliminating the sulphur and oxidising the zinc and other constituents, and then extracting as much of their lead and silver contents as possible by applying a modification of the chloridising and leaching process now used at the Broken Hill Proprietary Mine for dealing with certain classes of oxidised ore. It is not likely that any profit would be derived directly from the chloridising and leaching operations, for the quantity of silver recoverable from such material as the Broken Hill zinc concentrates would scarcely pay for the cost of treatment. But in undergoing this process the concentrates would be roasted and a portion of their lead contents, as well as various impurities, would be eliminated, and they would be rendered fit for zinc distillation without further preliminary treatment. Consequently the leached concentrates would be of greater value as a zinc ore, and would command a much more ready sale than the crude material. It is more than possible that treating the zinc concentrates by this method at a convenient South Australian port, and selling the leached material to European smelters as a good zinc ore would return a fair profit, and seeing the difficulties which attend the sale of the crude zinc concentrates this mode of dealing with them might be followed with advantage until zinc works are established in Australia.

In connection with this question of utilising the zinc contents of the Broken Hill sulphide ores it will be interesting to enquire into the possible output from this source, and how far it would be likely to affect the price and demand for this metal in the markets of the world. If the various Broken Hill mines are worked vigorously in a reasonable manner, and the operations not "rushed" with the object of unduly increasing the selling price of the shares, we may look forward to their probable future aggregate output of sulphide ore as likely to be from 600,000 tons to 800,000 tons annually; at any rate this estimate will serve as a basis for our calculations. This ore will probably contain an average of about 22 per cent. of zinc. Possibly about one-half of this may be profitably recovered, the remainder being accounted for by ores too poor in zinc to be worth treating, and by the losses in concentration and smelting. This estimate will give a possible output of from 66,000 to 88,000 tons of zinc per annum, an annual production which is exceeded by both Germany and Belgium. The following table will show the actual zinc production of the various countries of the world from 1883 to 1892 in metric tons:—

TAKEN FROM "THE MINERAL INDUSTRY" FOR 1893 SCIENTIFIC PUBLISHING CO., NEW YORK.

| Year. | Austria. | Belgium. | England, Retorted. | England, Pyrites ore. | France. | Germany. | Russia. | Spain. | United States. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1883 | 4538 | 78,368 | 13,826 | 15,804 | 15,915 | 116,854 | 6809 | 6843 | 33,375 | 284,331 |
| 1884 | 4536 | 77,487 | 10,381 | 20,157 | 16,884 | 116,276 | 4313 | 4295 | 35,585 | 298,614 |
| 1885 | 3948 | 81,298 | 9,933 | 14,752 | 15,108 | 129,098 | 4579 | 4247 | 36,921 | 298,889 |
| 1886 | 3843 | 79,248 | 9,036 | 12,536 | 16,132 | 130,854 | 4190 | 4327 | 38,696 | 298,860 |
| 1887 | 3619 | 80,468 | 9,820 | 10,238 | 14,712 | 130,444 | 3821 | 5349 | 45,682 | 306,893 |
| 1888 | 4001 | 80,675 | 10,166 | 17,048 | 16,980 | 131,224 | 3865 | 5117 | 50,731 | 321,781 |
| 1889 | 4840 | 82,526 | 9,548 | 21,756 | 17,982 | 135,974 | 3881 | 5640 | 53,414 | 335,359 |
| 1890 | 5449 | 87,701 | 8,692 | 20,992 | 9,372 | 139,266 | 3768 | 591 | 61,111 | 347,200 |
| 1891 | 5006 | 85,999 | 9,037 | 20,846 | 10,596 | 139,353 | 1875 | 5658 | 72,856 | 363,004 |
| 1892 | 5237 | 91,546 | 9,496 | 21,502 | 20,680 | 139,938 | 3600 | 5926 | 76,279 | 374,003 |

It has often been contended that if the Broken Hill zinc ore were utilised the quantity of zinc produced would be so great as to demoralise the zinc market and reduce the price of this metal to a nominal sum. The above table will demonstrate the absurdity of this contention. At the beginning of the present century zinc smelting as a permanent industry had no existence. Even in 1870 the world's production was not one-half the present consumption, and the production of this metal has increased from 284,331 tons in 1883 to 378,000 tons in 1893. Seeing that the consumption of zinc increases so rapidly, and that the development of any zinc-producing operations in Australia would take time, the Broken Hill mining companies need not allow any fear of over-production to deter them from attempting to complete the solution of the sulphide problem, and giving Australia another industry as important as the existing silver-lead industry.

# COMPANY FINANCE.

## Reports, Balance Sheets, Dividends, &c., of Mining and other Companies.

### Day Dawn Block and Wyndham Gold Mining Company.

The following is taken from the report of the directors of this company:—"The directors submit herewith the balance-sheet and statement of accounts for the year ending March 31:—The receipts from all sources amounted to £38,396 6s. 5d., and the expenditure to £34,568 0s. 9d., leaving a balance of £3828 5s. 8d. to the credit of revenue. This sum, added to the amount of £8920 13s. 9d. brought forward from last account, gives a total of £12,748 19s. 5d., which the directors propose to carry forward. During the year No. 2 inclined shaft has been sunk a further depth of 134 feet, and the No. 3 shaft 174 feet. 1772 feet of levels and crosscuts and 616 feet of winzes have also been driven and sunk during the year. These works were all done to open up the Day Dawn reef in deep ground; trial crushings were made as the work proceeded, but the reef was of indifferent quality, varying, according to the manager's report, from a few dwts. to 25 dwts. per ton. The details of all these workings will be found in Mr. Rollston's annual report, sent herewith. In Januuary last the developments were sufficiently advanced to permit of regular crushings; the fortnightly returns, although showing that the ore continued of low grade, still yielded a fair profit to the company, and the manager believes that the undeveloped deep ground will carry good stone. As shareholders are aware, the greatest interest has always attached to the progress of development in the adjoining property, owned by Mills' Day Dawn United Gold Mines Company (Limited), and it is with great pleasure the directors are able to state that the developments in that mine have proved the existence of another reef, which in all probability will extend over a large portion of this company's ground. Speaking of this reef, the manager says he believes, as far as can be judged at present, that it underlies all our old workings, and as the results from this reef have been so profitable to Mills' United, the prospects of our mine have greatly improved. The directors have given instructions for the necessary work to be commenced for opening up this important discovery, and the requisite air-compressing and rock-boring machinery as recommended by the manager, has been ordered. The mill on the Burdekin has been working regularly all the year, with one slight exception, caused by floods, crushing 35,251 tons of stone for this and another company."

The following is the report of Mr. D. Rollston, the general manager, as to the present position of the mine:—"In submitting my annual report, I may state that my anticipations as to the prospects of your mine, expressed in my report 12 months ago, have not been as fully realised as I had reasons to hope, judging by appearances in your mine, but particularly in the neighbouring property I certainly expected that the returns would have been such as to enable you to pay a dividend or two before this. There are several reasons why the desired results have not been obtained. In the first place, a large amount of progressive work had to be done before stoping operations could be carried on to any advantage, and in the absence of room for stowing it away, all mullock had to be hauled to the surface which, from the depth of the present workings, is a considerable item. The reef also at most of the points of operation has been of rather indifferent quality, varying from a few pennyweights to about 25 pennyweights per ton. Some hundreds of feet have been driven in reef of good size, but valueless as to quality; such was the case with Nos. 11 and 12 levels west, and a greater portion of No. 10 level west. The eastern levels, with the exception of No. 15 level, were driven mostly in blank ground. The trial crushings taken from the various points of operation, as development work was being proceeded with, the results of which were cabled to you from time to time, were a fair indication of the value of the reef in the various blocks of ground being opened up. The reef met with in No. 15 level east, being a continuation of that left on our boundary by Mills' United Company in their No. 7 level, and which gave rise to some sensational reports as to the prospects of your mine, is the highest grade ore being operated on at present. The level, however, was driven 80 feet from the shaft before the reef was struck, pointing out that there is a break in it in the neighbourhood of No. 2 shaft. The reef being worked on the western side of this shaft is of a totally different nature to that on the eastern side, and so far is of a lower grade. The reef worked thus far by us has been the Day Dawn. Since the discovery of what is termed the footwall reef (on account of its position as regards the former) in Mills' United, the results from which have been so profitable to that company, and the certainty that it enters your lease, the prospects of your mine have greatly improved. This reef has been traced to our eastern boundary, and will, in all probability, live to our southern boundary. It has also been tapped in the No. 15 stopes east, at some distance from the boundary; in fact, I believe, as far as can be judged at present, that it underlies all our old workings. Vigorous efforts

will be made as soon as possible to prove it in your ground at different points. The systematic development of it will, however, take some time, and will necessitate the expenditure of some capital in purchasing the requisite machinery to do so, as this reef is in a totally different class of country to what the Day Dawn is in—the ground being much harder—and rock-boring machinery will have to be procured to work it. Before this work is entered upon properly there is a considerable quantity of stone to be taken from the Day Dawn reef, which is showing on the boundary from No. 15 level upwards. There has not been a great deal of work done in the western lease, with the exception of sinking the No. 3 underlie shaft, which also had to be discontinued some months ago for want of proper ventilation. Driving was then commenced from the underlie in an easterly direction, to meet No. 10 level west, and a connection has now been effected. Sinking the underlie will shortly be resumed again, and driving No. 11 level east from No. 3 shaft commenced. The prospects in this portion of your lease, have not, as yet, been very good. The reef intersected in the shaft, although carrying a few specks of coarse gold when struck, has been on the whole non-payable. Some payable stone was met with in No. 10 level, and I believe that when the ground comes to be stoped out, it will prove, on the whole, remunerative. The following are details of the work performed during the year. In the aggregate, 308 feet of underlie shafts were sunk, 1772 feet of levels and crosscuts driven, and 616 feet of winzes, &c., were sunk. No. 2 shaft has been sunk a further depth of 134 feet, making total depth of underlie 2084 feet. The bottom of the shaft, which is 33 feet below No. 15 plat, is in formation carrying bunches of fair mineral stone, and looks promising for a reef coming in at any time, in fact, I believe the undeveloped deep ground will carry good stone. No. 15 level east has been driven 249 feet. At a distance of 80 feet from the shaft the reef was met with, and has continued to the present face, varying from 18 inches to 6 feet in thickness, worth (say) on an average, 1 ounce per ton. The reef in the stopes above this level will average 4½ feet in thickness of about the same quality as that in the drive. Two winzes were sunk to this level from No. 14 level east. No. 15 level west has been driven 153 feet from the shaft. It has carried a reef averaging about 3 feet in thickness most of the way, but of very poor quality. The reef in the stopes above the level is of a little better quality. Three winzes have been sunk through from No. 14 level west, on a good average size reef. No. 14 level east has been driven from the shaft to the boundary a distance of 271 feet. When stoping was commenced it was discovered that a rise of 25 feet had to be made before the reef was met, consequently an intermediate level was started and driven to the boundary a distance of 170 feet. The reef is poor where the intermediate was driven, but will no doubt improve as we rise on it. Two winzes were sunk to this level from the No. 13 level east. No. 14 level west has been driven 268 feet from the shaft. With the exception of a few breaks it has carried a well-defined reef all the way, averaging 4 feet in thickness, and worth (say) 14 dwts. per ton. The stopes have also carried a good size reef all along. No. 12 level east has been driven 156 feet, making it 167 feet from the shaft. Very little stone was met with in the drive, but the winze sunk from the end of the level carried a good reef downwards, after a depth of 25 feet had been attained. No. 11 level west has been driven 138 feet for the year, making total distance from shaft 330 feet. The reef is about 2 feet in thickness, but of no value. No. 10 level has been driven 342 feet, and holed through to No. 3 shaft. The total length of level and crosscut is 643 feet. It has carried a reef all the way, the average thickness of which, being about 2½ feet, but most of it is of a very low grade. Stoping has been commenced from the No. 3 shaft end of the level on a very fair size reef of medium quality. The Burdekin Mill has been working constantly during the year, with the exception of a stoppage of seven days, caused by the floods. It has treated 30,457 tons of stone for Mills' United Company, and 4,794 tons of our company's stone. We are at present employing 40 head of stamps, and Mills' United 20 heads. The improvements to the milling appliances were completed in the early part of the year. A tunnel is now in course of construction for the purpose of conveying water direct to the pumps, instead of, as hitherto, by means of suction pipes. This will greatly facilitate pumping, and will, no doubt, result in more stone being treated."

### The Zapopan Mines.

A circular to the shareholders states:—"By mail which reached London on the 15th inst. the board of directors have received further full and satisfactory reports from their general manager, Mr. Hillson; also the first letter from the newly-appointed mine manager and engineer, Mr. A. Johns. Mr. Hillson's letters, dated from the mine, May 31, report the purchase of a 15 head stamper battery, with engine and half a mile of tram rails; also of a 6 inch draw-lift pump, complete winding machinery for one shaft, and he was also negotiating the purchase locally of a 35 horse-power Cornish boiler and 25 horse-power engine. The purchase also includes iron buildings, tools, &c. Mr. Hillson adds:—'By purchasing the above we will get a really good plant capable of putting through 600 tons of stone per month, at a saving of quite £1000 on Melbourne cost. All the various parts are in good working order, and, taken all round, would be equal to new. The really first-class Cornish boiler and 25 horse-power engine are intended for driving the battery, and are capable of working 25 head of stamps. . . . There is no need for any apprehension with regard to the rainy season; when the above-mentioned pumps are at work, wet season or dry, work below will go on just the same. . . . Touching the successful working of this property, that large bodies of payable stone will be available is confirmed by the miners who were tributors under the late owners, and who have applied to me for tributes. Recently they discovered a large reef on the eastern side of the big lode on Lease 313, and raised 500 tons stone, which produced 734 ounces of gold (exclusive of concentrates). I am posting to you Mr. Johns' report on the property, in which, you will observe, he forms a high opinion of the northern end of your ground, and states it will shortly be necessary to erect a crushing plant upon it. This, however, can be better determined when the southern end is equipped and at work. . . . It will require but a month or so of crushing to satisfy you the company has a good thing in this mine.' Mr. Adam Johns, mine manager, writes, Brook's Creek, May 28, to the directors of the Zapopan Mines (Limited), as follows:—'The principal workings are on Lease 313. They consist of a series of reefs running parallel, five in number, averaging in width from 2 feet to 5 feet at the surface; but, from information I have got from the tributors, they have increased in size and quality as they go down. The present shaft is down 120 feet, and I propose to sink that shaft another 50 feet, and then to crosscut through the different lodes, when I have no doubt we can raise a large quantity of payable stone. Lease 329 is situated at the north end of the property. There are several shafts down on this lease; the deepest is down 120 feet. The last crushing from there, of 438 tons, yielded 760 ounces. There are three reefs in this lease, averaging about 2 feet each, yielding over 1 ounce. This lease will require a pumping and winding plant; with such appliances the late owners would have raised a much larger quantity of stone from it. There is a large quantity of stone dipping into your lease from the adjoining Lease 317 that has been highly payable, only the present owners are flooded out for want of a pump. The stone in Lease 329 is not as large as in Lease 313, but the quality is decidedly better, and in another 50 feet below the present level (120 feet) we ought to strike the run of stone dipping from Lease 317. *Re* tailings stacked from the old battery—I am of opinion they are very suitable for treatment by the cyanide process. I see no reason why the cost of treatment on the ground here should be more than 15s. per ton, or (say) equal to 4 dwt. of gold. I propose sending sample parcels of about 5 tons to the Government works in South Australia, and if the results show that the process is in every way suitable to our tailings, I shall recommend the erection of the necessary plant. I send you a list of crushings obtained by the tributors. The last from Lease 313 from the drive at 111 feet north in the main shaft, was 800 tons for 560 ounces gold; from No. 2 workings east of main shaft, 60 feet deep, 450 tons for 385 ounces gold; No. 3 workings east of main shaft, 50 feet deep, 500 tons for 734 ounces gold. These returns are from three of the five reefs mentioned in the first part of this report.' The remaining portions of Mr. Hillson's letters and Mr. Johns' report deal at length with details concerning the completion of the new battery and winding and pumping machinery, which is now in a forward state."

### Victory (Charters Towers) Gold Mining Company.

The following is the directors' report presented at the fourth half-yearly general meeting held in the company's office, Exchange, Sydney, on Thursday, the 27th day of June, 1895:—During the period under review 1861 tons of stone were treated for a yield of 1635 ounces 3 dwts. 23 grains of gold, which realised £5878 3s. 1d. In addition to this amount a sum of £257 6s. 2d. was obtained from sludges sold. Through the reef having pinched out in many places and having proved generally much smaller than in the ground previously worked, operations have resulted in a decrease of 2822 tons in the output of stone as compared with that of the previous half year, whilst the average quality was lower, being about 17 dwts. 14 grains, as against 19 dwts. 2 grains per ton for the six months ending 31st October, 1894. In consequence of the stone being limited in quantity, it was found necessary to reduce the number of men, and productive mining is now chiefly confined in No. 2 shaft to the Nos. 7 and 1A levels, and the intermediate level between Nos. 1 and 2 levels, while in No. 1 shaft the only productive work now being carried on is stoping the Papuan reef above No. 2 level. With a view to test the rich reef recently found by the Victoria Gold Mining Association in the crosscut from their No. 2 west level, and which is making towards your boundary, a new shaft (No. 3), comprising three compartments—two for cages and one for pump—has been started near the south-eastern corner of your ground and the boundary of the Victoria lease. It is anticipated that the reef will be reached at a vertical depth of 350 feet, and that to complete this work will occupy about six months. To meet the extra cost occasioned by sinking shaft—No. 3 (estimated at from £2500 to £3000), a call of 6d. per share was made on May 2, payable August 15. The Phœbe Company is working a good reef close to the Victory Northern boundary. The last two crushings therefrom, aggregating some 194 tons, yielded about 806 ounces gold. Your directors are mindful of the probability of this reef, which underlies the Victory, traversing your ground, and the question of testing its value will be a matter for discussion in the near future, but they consider it would be unwise to burden the company with further exploratory work till the sinking of the No. 3 shaft has been completed, as the present expenditure on dead work is heavy. Receipts for the half-year from all sources, inclusive of credit balance brought forward from last half-year, amount to £11,768 5s. 5d., and the expenditure to £10,206 6s., leaving a credit balance to carry forward of £1551 19s. 5d. Attention is called to the mining manager's report appended, which fully explains the work done, and the present condition of the mine.

The following is the mining manager's report. The following is a report of the work done in your mine for the past half-year:—No. 1 Shaft, Victory reef:—The only work done on this reef was taking out the remainder of the stone above No 11 north level mentioned in my last half-yearly report. Papuan reef:—The winze or underlie on this reef has been sunk a further 97 feet, making the present depth 211 feet below No. 11 Level. The reef has been from 3 to 15 inches, the quality of the stone has not been up to expectations. At a depth of 150 feet, we holed through to end of drive already driven from Papuan Company's ground, a distance of 150 feet from the boundary. This drive was continued on a further 120 feet, making a total length 270 feet. Carried a reef here that averaged 10 inches, but poor in quality. Stoping has been carried on from underlie to eastern boundary, on a reef from 3 to 12 inches. The ground stoped above drive is 55 feet, but so far there is not much improvement in the quality of the stone. Better results were expected, for the Papuan Company had good crushings during the time they were taking out the stone coming towards the Victory boundary. No. 2 shaft. No, 7 level has been driven a further 163 feet; present length of this drive 223 feet. There has been no reef in this drive for some considerable time; the country in the end is hard and bad shooting. At a distance of 120 feet from present face there was some stone met with; it extended for 20 feet along the drive, average size 14 inches. We are now taking an underhand stope on it; the quality is medium. There has also been some stoping done 30 feet from bottom of shaft on 15 inches of reef, medium quality. No. 6 level has been driven a further 78 feet; total length of this drive 234 feet. The last 50 feet was driven to ventilate stopes below. The crossdrive in No. 4 east has been driven 27 feet; total 297 feet; got into hard country in the end of this drive. An intermediate level has been driven between Nos. 1 and 2 levels a distance of 54 feet; carried 12 inches reef of fair quality for 50 feet; the last 4 feet driven in blank country. We are at present engaged stoping over this drive on 2 feet medium stone; the formation is about 10 feet. A winze has been sunk from No. 1 A level to intermediate level a distance of 80 feet, carrying a reef from 1 to 3 feet. Are rising and stoping over No. 1 A on 12 inches reef; the length of stone here so far is 25 feet; from level to face of rise 48 feet. The best stone we are getting at present is from this place. The 320 feet level has been driven east 94 feet; total, 140 feet. Nothing payable met with in this drive. A crossdrive has been put in at a distance of 18 feet, when hanging-wall was met with, also to footwall, 16 feet; no reef in these drives. This level has been driven west a further 226 feet, making the present length of drive from shaft 245 feet. At 165 from shaft a crossdrive was driven 36 feet, when hanging-wall was met with. There has been nothing payable in this drive so far. Work in Clarke's B. W. and Victory was finished the end of January, cut all the stone out that was in sight. No. 3 shaft was started on the 3rd of the present month; since then it has been sunk 40 feet and timbered 20 feet, whip-pole erected, engine placed in position, engine-house and smith's shop built. There is a good drop of water making in the shaft; it was cut at 25 feet from surface. The shaft will be carried down with three compartments for a depth of 70 feet, or below the water; the remainder will be sunk with two compartments, or each 4 feet by 3 feet 6 inches. Some of the timber for poppet-legs and brace was delivered on the mine to-day. Will continue sinking until all is ready for erection.

### The Eaglehawk Consolidated Gold Mining Company.

We have been officially informed that Mr. McEacharn, having recently returned from Melbourne, brought with him a few samples of the 200 to 300 tons of ore at grass. A small quantity of these were sent to Messrs. Johnson, Matthey, and Co. to be assayed, the result of which was as follows:—223 ounces 5 dwts. of gold per ton of 2240 lbs. of quartz. The directors have now sent the balance of the ore to be assayed, and the result will be duly published.

### Broken Hill Proprietary Company.

The London office of the Broken Hill Proprietary Company (Limited) have received the following cable, giving a *résumé* of the accounts and report for the half-year ending May 31:—"Profit for the half-year, £345,000; net liquid assets, £620,000, consisting of cash in bank and on deposit, £135,000; Consols and Local Government bonds, £75,000; bullion and stocks on hand, £410,000. Profit and loss account shows a credit balance of £655,000. Value of ore extracted, £3 3s. 9d. per ton. Cost of production, £2 1s. per ton. Directors' report states:—With regard to the future prospects of the mine, the board, together with the acting general manager, having fully considered in all its bearings the future working of the mine, and in view of the estimate of tonnage and value of reserves of oxidised ore, remaining available for treatment by present existing plants, are strongly of opinion that every effort must be made so as to economise the high grade ore, in order to prevent the excessive charges necessarily imposed on smelting low grade ore. The matter was fully considered by the board, and acting on the recommendation of the acting general manager, it has been decided to reduce the weekly output to such quantity as will permit the maximum of economy in the cost of extraction and treating the ore, by reducing the output to an advantageous limit. The board of directors regret it will be impossible to declare usual monthly dividends at present prices of metals without encroaching on the reserve of liquid assets. On the other hand, they think they are justified in believing the reduction for this half-year may not be very large—possibly one dividend of 1s. per share. John Howell has resigned. Alexander Stewart will be appointed general manager. An extract from the acting-general manager's report for this half-year states:—'Weekly output has been maintained for the past half-year, but in consequence of ores varying very much in quality and grade, the high rate of production can only be done by sacrificing the economy in working expenses. From the knowledge we have gained the oxidised ores remaining on hand are not likely to improve in smelting quality, and he is strongly of the opinion that, taking into consideration also the low grade ore remaining on hand, a greater total profit can be secured by reducing output to a reasonable extent.'"

— The directors of the NORTH QUEENSLAND MINES AGENCY have declared a dividend for the half-year ended June 30 at the rate of 30 per cent. per annum, less income tax, payable on August 12 to shareholders whose names appear on the London register on July 31. This is irrespective of any profits accruing from the sale of the Black Snake property, all particulars of which will appear in the report. The transfer-books of the company will be closed from August 1 to August 10, both days inclusive.

— The directors of the COLOMBIAN HYDRAULIC MINING COMPANY have declared a dividend of 1s. per share, free of income tax, payable on the 30th inst., on the shares as they stood on the register of members on July 12.

— The shareholders of the BRILLIANT CENTRAL GOLD MINING COMPANY are informed that a call of 3d. per share has been made, payable on August 24 next, and that all shares upon which the said call shall not have been paid on or before September 19 following, will be forfeited.

— At a meeting of the directors of the OOREGUM GOLD MINING COMPANY OF INDIA, held on Tuesday, it was resolved that a dividend of 2s. per share on the preference shares, and an interim dividend (free of income tax) of 2s. per share on both preference and ordinary shares be, and are hereby declared, payable on August 28, to the shareholders on the books of the company on August 6, and that the transfer books be closed during the said August 6.

— Official intimation has been given to the shareholders in the EXPLORING COMPANY (LIMITED) that the register of members of the company will be finally closed on Tuesday, the 6th day of August.

—. The secretary of the TRANSVAAL COAL TRUST (LIMITED) announces that the warrants for No. 8 dividend due to the European shareholders of the company were posted on Tuesday, 16th inst.

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TAMWORTH.—Under date of June 6, the manager (Mr. A Ballantyne) writes from Sydney, N S.W., that since his last letter he has made a more intimate acquaintance with the mine and adjoining properties, and is satisfied that the property has a good future. He has acquired the water right of two sluice heads which gives the Tamworth Company the command of all the water in the creek. From an inspection of the mills that are in use in the neighbourhood, he has satisfied himself that with the new mill he can crush the rock at a less expense than it now costs to stack it at the mine, and can also save more gold in the amalgamation.

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## BRAZILIAN GOVERNMENT 5 PER CENT. LOAN FOR £6,000,000 STERLING,

### Of which £2,000,000 are for the repayment of the Treasury Bills dated the 1st of February, 1895.

The President of the Republic of the United States of Brazil having by a decree dated July 15, 1895, authorised the issue of the above loan, in conformity with Law No. 265 of December 24, 1894, Article 3, paragraph 2, Messrs. N. M. Rothschild and Sons will receive subscriptions at their office. The bonds will be to bearer in sums of £100, £500 and £1000 each, with coupons for interest at the rate of 5 per cent. per annum, payable half yearly, on February 1 and on August 1, in London in pounds sterling; and in Paris, Amsterdam, Brussels, and Hamburg, at the exchange of the day. Scrip will be issued with a coupon due on February 1, 1896, for £2 10s. per cent., representing six months' interest. The price of issue is £85 for every £100 nominal capital payable as follows:—£5 on application, £15 on allotment, £15 on the 18th of November, 1895, £15 on the 19th of March, 1896, £15 on the 11th of May, 1896, £20 on the 16th of July, 1896; total, £85. Payment in full may be made under discount at the rate of 2 per cent. per annum, on any Monday or Thursday after the scrip has been issued. The loan will be redeemed by an accumulative sinking fund of 1 per cent. per annum, to be applied half-yearly by purchase of bonds when the price is under par, and when at or above par by drawings. The redemption of the bonds, by means of the sinking fund, will commence in August, 1897, but the Government reserves the right to redeem the whole or any portion of the loan at any time, on giving six months' notice. Subscription lists will be opened on Tuesday, July 23, and closed at or before four o'clock on the same day.

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## CONTENTS

Of this Number of "The Mining Journal, Railway and Commercial Gazette," July 20, 1895.

NEW PATENTS ... 853
CONTRACTS OPEN ... 853
JOINT STOCK COMPANIES—New Registrations ... 853
THE ECONOMIC IMPORTANCE of the MURCHISON RANGE ... 854
IMPROVEMENTS IN WATER SPRAYING ... 855
SOUTH AUSTRALIAN LETTER ... 855
MEETINGS OF MINING COMPANIES—
British North Borneo, Ouro Preto, Robbinson Gold, Drakewalls, Wheal Kitty ... 856
Newport Abercarn, Amana (Wentworth) Gold ... 857
REVIEW ... 858
THE PRESENT AND THE FUTURE OF COOLGARDIE ... 858
THE BROKEN HILL PROBLEM ... 859
COMPANY FINANCE ... 860
BRAZILIAN GOVERNMENT 5 PER CENT. LOAN ... 861
LEADING ARTICLES—
The Output of the South African Republic in 1894 ... 862
The Dry Process of Gold Crushing ... 863
NOTES AND COMMENTS ... 863
THE MINING MARKET ... 864
LATEST FROM THE MINES; Cablegrams and Telegrams ... 864
MINING NOTES FROM JOHANNESBURG ... 865
THE METAL MARKETS—
The London Metal Market ... 865
"THE MINING JOURNAL" SHARE LIST ... 866-867
CORRESPONDENCE ... 868
SIDE LIGHTS ON THE LAW ... 868
REPORTS FROM THE MINES ... 868
METAL CIRCULARS ... 870
TIN TICKETING ... 871
PROVINCIAL SHARE MARKETS ... 871
MINING IN CORNWALL AND DEVON ... 871
MINING FIELDS in the CRYSTALLINE SCHISTS of W. AUSTRALIA 872
ADVERTISEMENTS—(*See Index to Trade Advertisements, p. 850*).

**LONDON: JULY 20, 1895.**

# THE OUTPUT OF THE SOUTH AFRICAN REPUBLIC IN 1894.

IF any confirmation were needed of the unique mineral richness of the South African Republic; any further justification for the confidence which is now being displayed in it; and any further support to the faith with which its future is regarded, they are all furnished by the figures and information contained in the official report for 1894 of the Minister of Mines. It is a wonderfully detailed and voluminous document, containing within its pages all the information it is necessary to publish concerning the various gold fields of the Republic. South Africa is the country which at the present moment stands easily first. It can hardly be said to have a second, though there are not a few who would go so far as to dispute this. It is the opinion of a great many that in the future it will be beaten by Western Australia, but there is plenty of time to think about that, though it will be a grand thing if it does. It will all be to the advantage of that industry in which we are so deeply interested. From the figures published in the report it will be seen, as was to be expected, that the Witwatersrand gold field is not only first, but the others are nowhere. The De Kaap district, of which we have been hearing a great deal lately—perhaps a little too much—comes second, but far and way behind. The Lydenburg, that gold field respecting which everybody has been talking during the last few weeks, and which is looked upon as one of the most promising, comes fourth; whilst at the very bottom of the list, with a very low output indeed, is the Zoutpansberg district. The following are the official figures:—

| | Ounces. | Value. |
|---|---|---|
| Witwatersrand ..... | 1,949,939 .... | £6,718,168 |
| De Kaap ..... | 87,483 .... | 298,598 |
| Klerksdorp ..... | 78,358 .... | 264,724 |
| Lydenburg ..... | 60,276 .... | 173,275 |
| Heidelberg ..... | 52,685 .... | 172,340 |
| Zoutpansberg, &c. .... | 11,134 .... | 40,017 |
| Grand total.... | 2,239,865 .... | £7,667,152 |

The De Kaap field, which, in all probability, may not retain its present position during the current year, milled 95,443 tons of quartz, yielding 46,603 ounces of gold, valued at £175,239, or 0·49 ounces per ton, equal in money valuation to £1 16s. 9d. per ton. The total yield (including tailings, concentrates, and alluvial) is as stated in the above table, and is 3·9 per cent. of the total production for the State. The average value per ton of milled ore in the Klerksdorp district was 17s. 2d., or not more than half the average of the Witwatersrand, whilst from the Lydenburg 63,968 tons of quartz crushed yielded 32,452 ounces, valued at £111,242, or about £1 14s. 9d. per ton. By the cyanide process 29,496 tons of tailings, having an assay value of 0·53 ounce per ton, gave bullion worth £56,772, or an average of about £1 8s. 9d. per ton; 1490 ounces were obtained from alluvial. The average assay value per ton of the gold obtained from the Heidelberg gold field was 1·093 ounce, or £3 16s. 10d., which is the highest of any auriferous ground in the State. The tailings gave an average value of £2 11s. 1d. per ton. The least said about the Zoutpansberg, perhaps, the better. The returns have been sadly disappointing, attributable, according to the report, to the want of native labour. This district, certainly, has greatly suffered from this cause, the native disturbances there having, for a time, put a stop to gold mining altogether. Out of the 4526 claims pegged off during the year no less than 1613 were given up. The Malmani district produced 494 ounces for the year, whilst Carolina contributed 13 ounces, obtained from 80 tons of quartz. Pretoria yielded 6 ounces and Waterberg nothing. It will be seen, therefore, that the Rand has yielded no less than 88 per cent. for the whole of the country.

Dealing in a general manner with the number of companies at work, the report puts the number at 141, the nominal capital of which is £24,702,815, with issued capitals amounting to £22,940,321. The total cash supplied, including payments to vendors, was £7,869,811, or 34·3 per cent. of the total capital. These figures, of course, bring us only to the end of 1894. Since then the number of mines at work has considerably increased, as the result of the boom that has prevailed during the past six months, whilst the number will be more greatly augmented by the end of December next. At the present moment there are numerous properties in the hands of promoters awaiting a favourable opportunity for flotation. A few of these will be placed upon the market during the remaining summer months, whilst some will be kept until the Election is over, and the rest until the advent of the full tide of the Autumn. Up to the end of 1893 these 141 companies paid in dividends the sum of £3,503,867, or 20 per cent. of the total value of the gold production up to the end of that year. In 1894 the sum distributed increased to 21·5 per cent. As proof of the rise in the value of the shares during 1894, it may be mentioned that the market of 52 of the leading companies quoted on the Johannesburg Stock Exchange rose from £13,557,044 to £31,782,613, or an increase of 134 per cent. The pegging-off of claims increased during the whole of the period in equal proportion, notwithstanding the attractions of other gold mining centres. The report states that the claim licenses taken out increased from 48,181 to 62,466. As regards the importation of machinery, the figures given are equally interesting:—

| | 1893. Horse-power. | 1894. Horse-power. |
|---|---|---|
| Steam engines and lighting, turbines, &c... .. .. .. .. | 25,299 .. | 26,219 |
| | £ | £ |
| „ „ value .. .. | 769,009 .. | 1,079,314 |
| Hoisting, pumping, compressing machinery .. .. .. .. | 222,930 .. | 316,495 |
| Tramways, elevators, &c. .. .. | 227,605 .. | 223,580 |
| Workshops, &c. .. .. .. | 33,046 .. | 60,766 |
| Reduction machinery, mills, crushers, vats, &c. .. .. .. .. | 1,376,217 .. | 1,690,190 |
| Total .. .. .. | £2,627,816 .. | £3,370,345 |

The report then goes on to state and to prove, that the South African Republic has become the first gold-producing country in the world, a fact which no unprejudiced person would think of disputing. This was in the year 1894, but the enormous progress made during the first half of the present year has more than ever strengthened this position. Even the magnificent monthly output of 200,000 ounces will be put in the shade presently, when the better modes of extraction, and the improved machinery now being introduced are more generally employed. The total gold production in 1894 was 2,239,865 ounces, worth £7,667,152, which is an increase over the year 1893 of £2,186,654, or 39 per cent. Of this 68 per cent., or 1,457,103 ounces were obtained from milling operations, and the rest by cyanide treatment of tailings and concentrates. The tonnage of ore milled was: 1893, 2,482,159 tons; 1894, 3,269,462 tons, or an increase of 787,303 tons, equal to about 31 per cent. In the latter year 4991 stamps were at work, having an average weight of 834 lbs. each. The average crushing for each stamp every 24 hours was 3·63 tons, and the yield therefrom 0·446 of an ounce of gold, valued at £1 12s. 1d. From tailings 694,625 ounces of gold were obtained, of the value of £2,091,730, or 27·3 per cent. of the total output. The average assay value of this residue was 0·255 ounces of fine gold, and worth about £1 1s. 3d. per ton. Of the total quantity of tailings treated, 3,048,798 tons were by the MacArthur-Forrest process, and 30,757 tons by other methods. Concentrates yielded 84,471 ounces of gold, valued at £318,909, or 4·1 per cent. of

the total yield. The average assay value of the concentrates of the Witwatersrand conglomerate beds was 3·16 ounces, while that of the quartzite beds of Barberton gave 6·09 ounces, or nearly double. 13,060 tons of ore, of an assay value of 4·41 ounces fine gold, equal to £18 7s. 10d. per ton, were treated by the chlorination process, yielding gold to the value of £17 15s. 6d. per ton of ore, or about 96·6 per cent. of the gold contained, while 11,341 tons of concentrates, of an assay value of 2·29 ounces of fine gold, worth £9 11s. per ton of ore, treated by the cyanide process, yielded bullion to the value of £7 12s. 7d. per ton, or 79 per cent. of the assay value. The yield from alluvial was about 3666 ounces, valued at £12,806, or 0·2 per cent. of the total output.

Year by year the output has increased, as the following table, supplied in the report, will evidence:—

| Year. | Ounces. | Increase. |
|---|---|---|
| 1886 .... | 10,032 ..... | 8,925 |
| 1887 .... | 48,960 ..... | 38,928 |
| 1888 .... | 279,600 ..... | 230,640 |
| 1889 .... | 430,800 ..... | 151,200 |
| 1890 .... | 540,360 ..... | 190,560 |
| 1891 .... | 835,516 ..... | 295,156 |
| 1892 .... | 1,289,498 ..... | 453,982 |
| 1893 .... | 1,575,397 ..... | 585,899 |
| 1894 .... | 2,239,864 ..... | 664,468 |

Thus giving a gross total of 7,254,683 ounces, worth, in round numbers, 25 millions sterling.

## THE DRY PROCESS OF GOLD CRUSHING.

IT would seem that at last a definite attempt is to be made to solve the problem of dry crushing of gold, so as to obviate the undoubted inconveniences which at present attach to the process by water. It is not too much to say that in many parts of the world—particularly in Central and South America and India—the profitable working of gold and other minerals is simply prevented by the impossibility of providing water for the stamp batteries. We are face to face with the same problem at Coolgardie, and its encountering has meant the expenditure of enormous time and trouble in the other Australian colonies where metalliferous mining is already established. The objections urged against dry crushing are the production of excessive dust, and the difficulty of substituting other methods of gold extraction for wet amalgamation by means of mercury over the plates. So far as the dust difficulty is concerned, it may be met by discarding the stamp battery altogether, and using machines with enclosed crushing gear either in the form of revolving balls or rolls. But, apart from the mechanical difficulties which attach to these appliances, mining engineers have, as a body, a strong preference for the stamp battery as a means of fine crushing for ores. The dry crushing movement has certainly taken a strong step forward since it has been proposed to adapt the ordinary type of stamp battery to it. This is done by means of pneumatic tubes which convey the pulverised ore from the mortar boxes to cyanide vats, and which prevent the escape of the clouds of dust that have been the chief obstacle to the adoption of dry crushing in the past. There remains, however, the difficulty of amalgamation. In the method referred to, the crushed ore is conveyed directly to the cyanide solution, and treatment over the plates is not adopted at all. But though the untechnical reader is rather likely to be carried away by the enthusiasm of modern metallurgists for the cyanide process it must be remembered that there are a great many classes of ore which do not lend themselves to treatment of this kind. Free milling of the oxidised banket ore, in which the gold is found in minute fragments in the cementitious matter enclosing the pebbles, can be properly treated in the manner described. Indeed, it is perfectly possible to obtain good results from such ore after merely roughly grinding it in an ordinary stonebreaker. But where the gold is of an unoxidised pyritic character it will hardly be dealt with so readily. Mercurial amalgamation is for many classes of ore a necessary process in the course of treatment, and to dispense with such treatment in pans or over plates on the way to the vats will be found to involve the loss of a large proportion of the precious metal. Moreover, there are economical reasons why mercury should be preferred to cyanide as an agent in the recovery of gold. It is therefore, absurd to assume that dry crushing has been established on anything like a general scale for the pulverisation of metalliferous ores. At the same time the recent successful application of the process to the stamp battery marks a most useful advance in this direction. Experiments now being conducted also give every hope that before long large advances will be made in the employment of Krom rolls and other dry crushing machinery. The crucial fact is that in this branch mining engineering is decidedly progressive. The future developments of the experiments now proceeding will be watched with the utmost interest by mine managers and shareholders who are concerned with the working of mineral deposits in arid regions.

## NOTES AND COMMENTS.

SINCE March, 1893, the shareholders of the Day Dawn Block and Wyndham Gold Mining Company have received no dividend. At the annual meeting held last year hopes were held out that a resumption of hem would take place in the near future. However, we now learn that the anticipations that were formed both by the directors and by the manager of the company have been very far from realised. It cannot be truthfully said that the report which they have now issued is an encouraging one. Many, perhaps, may regard it as satisfactory, but by far the greater majority will be sadly disappointed. The hopes of everyone interested in the company are based upon the results of deeper working. For the last two years developments have been vigorously pushed ahead, with the object of opening the mine at depth. No. 2 shaft has been sunk to a depth of 2084 feet, but here the promises are not very great. The manager says that the bottom of the shaft is in formation carrying bunches of fair mineral stone, and that it looks promising for a reef coming in at any time. This, of course, seems fairly encouraging, and it is to be hoped that something of this kind will happen. Several reasons have been given as to why the desired results have not been obtained, but the chief and significant one seems to be that at most of the points of operation the ore has been of rather indifferent quality. This fact is not only disappointing, but it is really depressing, for no hope is held out that the mineral is likely to increase in value. The result of the year's working leaves a balance of £3,828 5s. 8d. to the credit of revenue. This, added to the £8,920 13s. 9d. brought forward from the last account, gives a total of £12,748 19s. 5d., which it is the intention of the directors to carry forward.

THE shareholders in the Amana (Wentworth) Gold Mining Company are fit objects for commiseration. Within the last three months they have gone from one extreme of hopefulness to the other extreme of despondency. Not three months ago they were informed on the best authority that "success" was "assured." Now they have had no alternative but to pass a resolution approving the action of the directors in stopping further expenditure, and that of their manager, Mr. Warnford Lock, in shutting down the mine. There can hardly be any question that Mr. Blomfield committed an error of judgment in cabling such a phrase as "success is assured." Of course, we are in the impregnable position of judging after the event; but facts should be very glaring indeed, and failure dim and distant—almost an impossibility—before a message of such a conclusive character would be at all defensible. Still, there is evidently nothing in question but an error of judgment. Mr. Blomfield did his best to get reliable information, and failed—that is all. If it be better—as most persons will agree—to awaken to the true state of affairs early than late, then it was fortunate for the mining company that Mr. Warnford Lock arrived on the property to unlock the mystery when he did.

WE would draw the attention of our readers to the interview which we publish elsewhere, with Mr. George Seymour, a member of the well-known firm of Bainbridge, Seymour, and Co. This gentleman went out to Western Australia some three or four months ago, where he is still, and where he is likely to stay for some time. It will be gathered from the interview that Mr. Seymour not only holds a very high opinion of Coolgardie, but a most enthusiastic one. He gives expression to his opinion in no guarded or mild terms, so that it is impossible to misunderstand him, or to give more than one meaning to his utterances. Before he went out he had formed a high opinion of the country, but after he had inspected the field that opinion was not only confirmed, but was made considerably stronger. We are not going to say, of course, that it is impossible for Mr. Seymour to be wrong. He is as fallible as any other man, and it is quite possible his prognostications may be unrealised. One thing is certain, however, and that is that the opinion of an expert of such influence and repute is deserving of serious consideration; that it will carry considerable weight, and that it will even go so far as to change the views of many who are sceptical as to the richness of the country.

THE Johannesburg Chamber of Mines is again busying itself with the vexed and perplexing question of native labour, the supply of which has not been equal to the demand. As a decent and orderly member of society the native may be a failure, but under strict supervision, and deprived of every means of drinking himself into a frenzy with fire-water, he passes muster as a tolerably satisfactory mine-worker, and above all as a cheap one. Somewhat hampered, as it is, by the straitened limits to its means, the Chamber is doing its best to cope with the difficulty by encouraging these coffee-coloured races to migrate southward into the mining districts. Shelters of a rude description are being put up for the convenience of the natives on the march, and other elementary precautions of a kindred sort are being taken with the same object. Rudimentary as the measures adopted by the Chamber necessarily are, the committee directing the operations are not despairing, for circumstances are at present in their favour. One of those pleasant and exciting little race wars that from time to time enliven the lower interior of Africa, and which in this case has drained the Zoutpansberg and Waterberg districts of the native population, has terminated in the slaughter of a chief and the destruction of his principal town, so that it is hoped that large bodies of the natives, deprived of the congenial exercise of savage warfare, will settle down into the tamer but more profitable pursuit of mining. Let us hope that this conjecture has a sound foundation.

A COMPARISON of the May returns for the Gympie gold field with those of the same month in last year is not altogether an inspiriting occupation for those who may have large interests in that part of the colony. There is a decrease of 7400 ounces in the yield of gold, and the dividends paid are less by £23,833. To make this record a shade worse, there is a decided leap upwards in the amount of calls paid. The latter circumstance is, however, susceptible of a natural and satisfactory explanation in the large number of new mining ventures that have been set going during the past year or so. These are necessarily obliged to draw upon capital at the outset, and the shareholders who pay up have in exchange the hope of dividends to come. Should the majority of them turn out successfully, the present rather dusky state of affairs may brighten in the more or less distant future, and in any case there is not yet ground for anything like despondency. As it is, the returns of the older and more solid ventures are steadily maintained, and to this extent, at least, the workers on the Gympie gold field have the right to contemplate their sphere of mining operations without dissatisfaction

THERE is a momentary lull, whether engendered by the hot weather, or a pause in the speculative spirit of the public, observable for a few days in City affairs. To use an Americanism, things are still "humming," but the "buzz" is now, perhaps, in rather a subdued key, as compared with what it was a month or two back. Stockbrokers and the myriad of men who flit moth-like around the Stock Exchange, have fairly earned a short rest, and may play tennis on the superb ground at Exmouth, linger along the broad, breeze-swept front at Brighton, or go mountaineering in Wales with a complacent sense of duty performed. At the same time the lull must not be taken as any abrupt or final termination of the mining boom which has now been with us for nearly a twelvemonth. It is but a depression between the waves; and booms, like breakers, are said to go in threes. After the vacation an upward movement of even greater force than the present may be expected, while until then City men may well be content to forget, or, at least, ignore debentures and other stock for an all too brief period.

AN account of a new and, in some respects startling, method of placer mining is vividly described in one of the industrial papers in the Western States. The case is of a rock-bedded river with crevices formed by the eddying current, and the problem is to extract the gold from the bottom of the deeper recesses, where the movements of the river are powerless to wash away the sediment. A venturesome and resourceful Australian, struck with the conviction that much of the gold coming down the river must lie unclaimed in the bottom of the crevices, took a plunge one morning into a well-like chasm, whose depth and position had struck him as being of a likely character. At first the prospect of his returning alive to the river-bank seemed excessively remote as the depth of the recess had exceeded his expectation. The diver, however, who had pursued his education at the pearl fisheries, and who had observed the precaution of weighting himself with a heavy rock, kept bravely down, and in due course was able to snatch a handful of dust and shingle from the bottom. When, at length, he lay panting on the bank, his hand contained no fewer than 17 nuggets, ranging in value from a few shillings to £7, as the reward of his pluck. It is, perhaps, hardly probable that the method here indicated would be at all largely adopted. The chances of drowning on the one hand, and the recovery of gold on the other, if worked out, would be found to discourage its pursuit, as a course practically certain in time, and probably, in no long time, to lead to the extinction of the miner.

THE *Birmingham Post*, in discussing the reasons of the many disappointments encountered all over the world by British mining enterprise, assigns as the chief one—or at least, as one of the chief—the omission on the part of the company managements to rely upon expert advice when deciding what measures shall be taken for the developing and working of their properties. This is no new view, as readers of our columns will certainly admit, and it is one that readily occurs to the ordinary business man who watches the careers of companies, and the tactics of boards of direction. It is not so much in London that the evil exists as elsewhere. London boards have at hand, in the vast majority of cases, a competent consulting engineer, who is present at all the board meetings, and who takes care to influence the deliberations of the board in the right direction, although when the time for actual voting comes—if voting there be—he may not be able to hold up his hand. Mining is essentially an affair of expert opinion; the fact is so patent that we should almost hesitate to proclaim it, were it not true that speculators and promoters not infrequently act as if the industry were to be comprehended and its mysteries grasped by the ordinary man of affairs with no special training or experience. And yet how many men would act thus misguidedly in their ordinary private affairs of life?

THE trade boom in America is the one commercial topic which is occupying the attention of English businessmen at the present moment. Prices have run up in an extraordinary manner in the American iron and steel trades, and if they go on at the present rate it will pay American consumers to import English manufactures, which are obtainable at lower rates. The consequence will, therefore, probably be that we shall have a repetition of what has occurred in previous American trade booms—namely, that English iron and steel imports into the States will jump up to unusual quantities. Grey forge pig has risen since the opening of the year from $9·25 to $11, and No. 1 foundry from $10·25 to $12·50. Bessemer steel has improved by about $3, and Siemens-Martin blooms and billets have gone up from $15·25 to $20. Merchant bar iron has progressed from $1·10 to $1·30 per cwt., and plates from $1·15 to $1·50; whilst beams and channels have advanced from $1·25 to $1·55 per cwt. It is noteworthy that the chief portion of these advances have been made during the past eight or nine weeks. At the present moment large orders are being daily expected to be distributed by the American railway companies, a circumstance which it is anticipated will still further strengthen steel railway material. Before July closes many of the American railway material mill will have sufficient work to keep them fully occupied until the end of October. The Transatlantic revival in prices is going ahead faster than that of this country, and the result is very likely to be that English material and manufactures will in the immediate future find more openings for entrance into America than has been the case for several years past. These prospects of a genuine revival in English trade with America are decidedly gratifying, and it is to be hoped that in these times of unexpected commercial reverses nothing may intervene to prevent their fulfilment.

IT is too early yet to form any definite opinion of the value of the property which has been acquired by the Robinson Gold

Mines (Limited), which, by-the-bye, is not the great Robinson Mine of South Africa, but a new concern of a similar name, whose property lies in Western Australia. The statutory meeting of the company was held on Wednesday, and—what was most unexpected—the Chairman and Mr. F. A. Thompson gave a great deal of detailed information as to the state of affairs at the mine, details which we are not accustomed to hear so early in the career of mining properties. Perhaps the most gratifying announcement in the Chairman's speech, and one which was, no doubt, exceptionally pleasing to the shareholders, was to the effect that the Hon. H. J. Saunders had accepted a seat on the board, which was, of course, evidence that this gentleman holds a high opinion of the mine. In addition to this a very favourable telegram was received from the manager of the mine. Mr. Thompson, who had the assistance of a map or chart, upon which he indicated the various points of operation, went into considerable detail respecting the present condition of the workings. Another telegram received from the manager stated that a block has been acquired on the south-east direct from the Government, an addition which has swelled the area of the property originally acquired by 12 acres—that is from 30 acres to 42. According to Mr. Backhouse, the mine manager of the West Australian Gold Fields Company, something like 4000 tons of quartz had been developed, but Mr. Thompson calculates that, considering the development work that has been done since the date of the former's report, at least 7000 tons must be now exposed. From these and other particulars it would seem that the prospects of the company are certainly encouraging.

# THE MINING MARKET.

FRIDAY EVENING.

**Election markets. — Kaffirs and West Australians closing with a dull appearance, after maintaining prices hopefully.**

BEARING in mind that business and social life have been in a state of upheaval during the past week by reason of the General Election, it is remarkable that the Mining Market has maintained its firmness to the degree indicated by the changes in the quotation list. Had the underlying strength of the South African Section been in any way less than it is, the occasion would have been seized for depressing prices, for it answers the purpose of the jobbers to have fluctuations in whatever direction rather than steady stagnation. As a matter of fact, there has been a good deal of activity during the week, though at the close the tone is not quite so strong as it has been. For this easing off the approach of the End July Settlement is mainly responsible. Tuesday next will be Mining Contango Day, and after the conclusion of the Account on Friday, under normal conditions, there would be a unanimous vote for holidays. But, as need hardly be stated, these are not normal times, and it is extremely problematical whether the Stock Exchange witnesses any official holiday season this side of Christmas.

Prices in the South African Section were inclined to sag away on Saturday, in anticipation of the polls this week. There was no ostentatious selling, and declines were never serious, nor even general. Mays for instance were exceptionally firm, and Land shares held their own. West Australians escaped the reflection which influenced other departments, and a good large business was done. The Miscellaneous Department opened with a show of buoyancy, but a dull tone supervened in sympathy with South Africans. Several Indian shares were a shade easier. On Monday morning a few selling orders from Paris intensified the dulness in Kaffirs, but in the later dealings there was a change of tone, and a smart recovery left quotations generally higher, with an improving appearance. There was a marked revival in Chartered, carrying with it a rally in several Rhodesian undertakings. West Australians, however, were weaker, and in Miscellaneous several of the more speculative shares closed at a decline. Tuesday witnessed a dull opening, with increasing activity as the day proceeded, resulting in slightly higher prices in a large number of instances. There was a biggish business done in West Australians, though the changes in prices were not important. There was a further reaction in the Lydenburg group and Elkhorns were flat. On Wednesday the Kaffir section was decidedly hard, although the amount of business doing was but moderate. There were big jumps in Eastleigh and Apex, but otherwise changes in quotation were not important. West Australians were strong and dealers complained of a short supply of stock, so that buying had a palpable effect upon quotations. There were some heavy sales of Lydenburg shares. Indians were steady on the Ooregum dividend, and the low-priced shares in the Miscellaneous division held their own. Thursday witnessed a decided falling-off in the amount of business doing, and members began to talk about the approaching Settlement as a justification for lower prices. The relapse was not serious, but it affected all sections alike. To-day the tone has been weaker, and business on a very small scale. There is nothing to be surprised at in the reaction; the only matter for wonder is that things have been supported as well as they have. It is improbable that any appreciable improvement will set in this side of the Account, but there are no grounds for apprehending any serious set back in prices.

### South African Mines

In the South African section there are very few movements to call for detailed comment. The most sensational rise, although it affects very few people, is in Apex, which closes £5 higher on the week at 14. In the Barnato group the chief feature of interest has been the dividend declaration on Johannesburg Investment—20 per cent. for the half-year, accompanied by an intimation that the profits of the undertaking are equal to one million sterling. Both these items of information have been in circulation unofficially for some time, but the definite announcement leaves the shares ¾ better at 4¼. May Consolidated spurted to 4¼ "buyers" on Monday, on the announcement that the directors had placed the 10,000 reserved shares at 3½. The reaction of the last day or two, however, has taken the price back to 4. Buffelsdoorn were strong on Thursday at 8$\frac{13}{16}$, closing ¼ below that price, but still $\frac{1}{16}$ better than last week. Declines not exceeding ¼ are shown in Glencairn at 4⅜, Primrose at 7⅞, and Spes Bona at 2⅞. The Messrs. Barnato are the prime movers in a new undertaking known as the Rand Exploration, the shares of which were dealt in on Tuesday at 3. Of the Robinson stocks Block B are unchanged at 30s., and Langlaagte Estate at 6⅛, whilst Randfontein are a shade better at 3, after touching 3⅛ "buyers" on Wednesday. East Rands have been rather persistently sold, closing at a decline of $\frac{1}{16}$ at 6$\frac{1}{16}$. Comets are ⅛ easier at 4. Rand mines are ⅛ lower at 34¼. There has been less excitement in Deep Level shares. Champ d'Or Deep are $\frac{3}{16}$ better at 3$\frac{1}{16}$, but others are unchanged. Bantjes have been over 5, but are finally only $\frac{3}{16}$ better at 4$\frac{13}{16}$. An active business has been done in Luipaard's Vlei, rumour having it that an influential financial group has been acquiring an interest in the property. The shares were as good as 36s. 6d. this morning, but close at about 35s., as compared with 22s. 6d. at the last making-up. There was a spurt of $\frac{1}{16}$ in Eastleigh on Wednesday, carrying the price to 2¾. The only reason assigned for the movement was that bear operators had been taking liberties with the shares on the strength of the indifferent June return. The last price is 2$\frac{1}{16}$. Ginsbergs are unchanged at 2$\frac{1}{16}$, but it may be noted that they come into the Settlement this Account as do St. Angelo, still quoted at 4⅜. Amongst the shares which have given way slightly during the week are Durbans at 8½, George and May at 2$\frac{1}{16}$, George Goch at 3½, Henry Nourse at 7½, Jubilee at 11¼, Knights at 9½, Minerva at 2$\frac{7}{16}$, Nigel at 7⅝, Robinson at 9¾, Salisbury at 5½, Van Ryn North at 2½ premium, and Wemmer at 12¼. A strong demand for Jumpers set in on Wednesday and Thursday, and at 8¼ the shares are $\frac{7}{16}$ better on the week. Rietfontein have gone steadily better day by day on the announcement by cable of the striking of a new reef. The shares are ¾ up on balance at 5½. Orion has put on $\frac{5}{16}$ at 4$\frac{15}{16}$ on the reported increase of the stamping power. Chartered have been as good as 5$\frac{7}{16}$, but are finally only $\frac{1}{16}$ to the good at 5. Consolidated Gold Fields have given way $\frac{7}{16}$ to 12$\frac{9}{16}$, and Gold Trust is finally unchanged at 9⅛. New Africans were in strong demand at one time up to 7⅞, but the last price, 7⅝, is only ⅛ better on balance. Oceanas have scored ⅛ at 3⅜, whilst Mozambique have receded 2s. to 34s. Potchefstrooms went over 2, but are finally $\frac{1}{16}$ down at 1⅞. Klerksdorps were quiet until this morning, when they ran up from 23s. to 26s. 6d., buying being accompanied by the usual stories as to the striking of the Buffels reef. Hendersons have eased off $\frac{3}{16}$ to 4⅛. There has been some good buying of African gold properties, which have risen to 1$\frac{1}{16}$ on the flotation of a subsidiary company. African General Developments have hardened to 8s. The Lydenburg group has attracted a good deal of attention, but prices generally are lower, the rise having tempted holders to realise. Lisbons are firm at last week's price, but Balkis at 9s. 6d., Eesterling at 6s. 6d., and Graskop at 9s. 9d. are all 1s. to 1s. 6d. lower. Spitzkops have receded $\frac{3}{16}$ to 1$\frac{1}{16}$, and Barretts 4s. 6d. to 20s. 6d. Diamond shares have been quiet with a sagging tendency. De Beers are $\frac{1}{16}$ lower at 22⅜, and Jagers ⅛ down at 9. Beaconsfields are rather easier at 1$\frac{13}{16}$, as are Gordons at 8s. 6d., but Diamontfontein have maintained their position at 6s.

### West Australians.

There has been a good deal of business in the West Australian department, but on balance changes are not so important as was the case last week. Great Boulders ran up to 4⅜ "buyers," closing to-night at 4$\frac{3}{16}$, a gain of ⅛ on balance. Associated Gold Mines did not long maintain their spurt, and are ⅛ lower at 1$\frac{7}{16}$. Rightly or wrongly, the market connected the movement with the "A Stock" advertisements of the Universal Stock Exchange, and when it was found that the rise was based upon no more solid foundation than this, there was a quick relapse. Hampton Lands had advanced ⅛ to 5⅛, whilst the Plains are slightly easier at 2$\frac{1}{16}$. Londonderry was momentarily as good as ⅜, closing unchanged at 1⅛. West Australian Gold Fields are half a point up at 4½, and Investments $\frac{9}{16}$ better at 17⅜. Abbott's have advanced ⅛ to 1$\frac{3}{16}$. There has been a move up in Murchison New Chum, which is last quoted at 1$\frac{3}{16}$ on a remarkably good crushing. Mawson's Reward is ⅛ better at ⅞, and Sherlaw's have been in demand, the Syndicate at 18s. and the Gold Company at 12s. 3d.

### Miscellaneous.

Indian Gold shares are generally a shade below last week's prices, in spite of the encouragement of the Ooregum dividend announcement. Ooregums are 3⅛ and 4$\frac{1}{16}$, Nundydroog 2$\frac{1}{16}$, Mysore Reefs 9s. 6d., and Gold Fields of Mysore 23s. 6d. There is not much change in the New Zealand group. Hauraki is unchanged at 14s., with Scottys at 5s. and Kapanga 6d. down at 10s. Elkhorn have given way to 7s., whilst Broken Hills are unchanged at 40s. Wentworths have improved $\frac{1}{16}$ to 1$\frac{1}{16}$ on a dividend announcement and a satisfactory return from the mine. Aladdin's are unchanged at 1¼. Burma Rubys have receded 6d. to 17s. 6d. Changes in copper shares are irregular, Tintos are ⅛ higher at 16⅛, and Capes at 2, and Copiapo at 2$\frac{1}{16}$, have put on $\frac{1}{16}$, but Libiola have fallen $\frac{1}{16}$ to 3$\frac{3}{16}$ and Tharsis $\frac{1}{16}$ to 4⅛, whilst Masons are without change at 2⅜. There has not been much doing in Charters Towers varieties, Day Dawn Blocks are rather easier and Carringtons firm at previous prices.

### British Mines.

Business has been limited in the Cornish share market, the elections occupying most of the attention; but the general tone has been firm, and the tendency upward. The expected large Government majority is causing a more hopeful feeling to be prevalent as to the prospects of trade generally, and as affecting tin in this constituency in particular, and that the return of Mr. Strauss would probably give a further immediate impetus to the market. The changes during the past week have been chiefly in an upward direction. Carn Brea have been in demand, and close firm at about 3. "Dolcoath Mine (Limited)" has now been registered, and the new shares will very soon be issued for subscription, the holders' notices being already out. The price at present seems to be about $\frac{1}{16}$ to ⅛ premium, but so far dealings have hardly yet commenced. It is expected, however, that there will shortly be active dealings, and a good premium will be established. Tincrofts have been well supported, and the price has advanced to 8¼. Grenvilles firm at 13½. Others steady, without much business.—Risen: Carn Brea 15s., Tincroft 25s., Wheal Grenville 15s., and Wheal Kitty 3s.—Fallen: West Frances 5s.

### STOCK EXCHANGE SETTLING DAYS.

Settling Days on the Stock Exchange are as follow:—

CONSOLS.—Thursday, August 1.

STOCKS AND SHARES.

JULY.

| Ticket Days. | Account Days. |
|---|---|
| Thursday, July 25 | Friday, July 26 |

AUGUST.

| | |
|---|---|
| Tuesday, August 13 | Wednesday, August 14 |
| Wednesday, August 28 | Thursday, August 29 |

Contango Days for South African Market:—

| | |
|---|---|
| Tuesday, July 23 | Saturday, August 10 |
| | Monday, August 26 |

THE STANDARD DIAMOND MINING COMPANY (BULTFONTEIN MINE) (LIMITED) has opened a London transfer office at 15 and 16, George-street St. Swithin's-lane, E.C.

# LATEST FROM THE MINES.

## CABLEGRAMS AND TELEGRAMS.

AFRICAN GOLD RECOVERY. — The African Gold Recovery Company (Limited) announce that 56,780 ounces of gold have been recovered at the Rand, and 6600 ounces in other districts, total 63,380 ounces during June, by means of their MacArthur-Forrest cyanide process. The May total was 66,200 ounces.

BALKIS EERSTELING.—The directors have received the following by cable from the manager, dated to-day. "At a depth of 100 feet struck a rich body of ore sample sent by mail."

BROKEN HILL PROPRIETARY.—The manager reports that for the week ending July 18, 8294 tons of ore were treated, yielding 606 tons of lead, containing 173,799 ounces silver; also 1638 tons treated by amalgamating and leaching plants plants producing 16,865 ounces silver. The price of the shares in Melbourne is £1 18s.

BUFFELSDOORN CONSOLIDATED. — The shaft has reached a depth of 25 feet. The width of the reef is 5 feet, assaying 15 dwts. per ton.

CAYLLOMA.—The June production of the Caylloma Silver Mining Company in bullion was 19,750 ounces, instead of 9750, as stated last week.

DAY DAWN BLOCK AND WYNDHAM.—This company has received the following cablegram from the general manager at Charters Towers giving the result of the crushing for the fortnight ending the 13th inst.:—"Tons crushed, 1000; yield of gold, 623 ounces; approximate value, £2150; fortnight's expenses, £1750."

EASTLEIGH.—June returns. Mill 26 days, 1400 ounces

ELKHORN. — Bullion produced in mill for week ending July 13, 10,000 ounces.

FREDERICK THE GREAT.—The directors have received the following cable from Bendigo, dated July 17:—"Have struck the lode 680 (feet level), 780 (feet level), the width of the reef is 20 feet. The vein looks poor, very promising quartz. Have commenced driving south 680 feet level."

GELDENHUIS ESTATE AND GOLD.—Copy of cablegram received from head office, Johannesburg:—"Last month's (June) profit was £10,800."

ISLE OF MAN.—The secretary has sold 100 tons of this company's ore at £8 10s. 6d. per ton.

LANCASTER.—Development on Battery reef promises well. On the 110 feet level the level has been driven 180 feet. Average width of reef 2½ feet, assaying 1 ounce.

LOMAGUNDA DEVELOPMENT.—Ayrshire No. 1 shaft is 70 feet deep, No. 2 is 54 feet deep, No. 3 is 67 feet deep, No. 4 is 65 feet deep, No. 5 is 60 feet deep, average width of reef is over 35 feet as cut throughout, increasing in shaft No. 4 to 70 feet, whole of which will give average yield more than 1 ounce per ton. Shafts No. 2 and 4 are now connected by drive of 70 feet, the main shaft is down 85 feet, 10 feet by 7 feet sunk on reef; think we shall crush with 10 stamps easily in four months.

MAY CONSOLIDATED.—The following cablegram has been received from the head office of this company at Johannesburg: "Have disposed of 10,000 reserve shares at £3 15s. per share. Have resolved on an increase of 20 stamps and to increase the cyanide works to 14,000 tons immediately. Funds ample."

MOODIE'S FORTUNA.—The following cables have been received:—"Struck a good body of ore, width 5 feet, at the lowest level 480 feet. Consulting engineer recommends 20 stamp mill." "Reef which was struck at the lowest level assays 3 ounces 4 dwts. per ton."

MOODIE'S.—Returns for June:—Claims rented or leased from the company, 400; Number of tons crushed by claimholders, 720; yield of gold from ditto, 555 ounces.

MOUNT CHARLOTTE.—The secretary cabled on the 11th inst.:—"Hannan's developments opening up splendidly; lode 35 feet wide underlying your property. Mount Charlotte shares are at par."

MURCHISON NEW CHUM. — According to cable advice just received from the mines:—"150 tons crushed, yielded 1130 ounces of gold."

NEW RIETFONTEIN ESTATE.—The following cable has been received from Johannesburg:—"Have struck reef on south level shaft No. 2 east drive, visible gold, going 20 ounces to the ton."

NIGEL.—Last month's crushing yielded 2250 battery, 1744 cyanide, 241 retreatment work; total, 4235 ounces.

OURO PRETO.—This company has received a cablegram giving the June returns as follows:—"From Passagem Mine: 3785 tons produced 46,075 grammes equal to 1482 ounces, 26 days' milling.—From Raposos Mine: 300 tons produced 1688 grammes equal to 54 ounces."

PAHANG CORPORATION.—The directors have received the following cablegram, giving the output for the month of June:—"Jeram Lumpong Mill: In 14 days of 24 hours each 440 tons of stone were crushed, producing 34 tons 9 cwts. of black tin; 20 head of stamps running; working cost, $11,250.—Jeram Batang Mill: In 13 days of 24 hours each 415 tons of stone were crushed, producing 15 tons 14 cwts. of black tin; 20 head of stamps running; working costs, $4250."

ROODEPOORT DEEP LEVEL.—"During the month the number of feet risen, driven, and sunk was 306; the tonnage developed was 3000, of an average value of 24 dwts. per ton over a breadth of 24 inches. Battery will start on September 15; plant and machinery satisfactory. Reefs not yet found beyond dyke."

SILVER KING.—Manager cables:—First half of July: Ore crushed, 1100 tons; estimated production, 9400 ounces silver."

SAN SALVADOR SPANISH IRON ORE.—The *s.s. Ronnie* sailed from Santander on the 16th inst. with 1700 tons of this company's ore for the Tyne.

SPRINGDALE.—"Gold Standard Mine: The shaft has reached a depth of 86 feet. Result of first mill test 8 cwts., 2 ounces 5 dwts. per ton."

ST. JOHN DEL REY. — The following telegram was received from Mr. Chalmers on July 15: — "Produce 10 days first division July 9500 oitavas, equal to 1095 ounce troy, value £3681; yield per ton 5·9 oitavas (·6801 ounce troy)."

VAN RYN GOLD.—"The profit for last month on milling operations was £1589; ditto on cyanide works, £1309; total amount for month of June, £2897."

VICTORIA GOLD MINING ASSOCIATION (Charters Towers).—The following cablegram has been received at the London office:—"242 tons crushed, yielded 497 ounces gold in fortnight."

WENTWORTH GOLD FIELDS PROPRIETARY. — The following cablegram has been received from the mines:—"Five weeks' return totals 1850 ounces of gold—namely: 920 tons of ore have been crushed, yield 1450 ounces, and 3 tons rich crude ore have been shipped containing 400 ounces. We have struck rich arsenical pyrites in the crosscut from the west drive of the New Main shaft 490 feet level. There is nothing new in the other parts of the mine."

WOLHUTER.—Crushing for June 3680 tons, produced 1705 ounces, cyanide 710 ounces.

WORCESTER EXPLORATION.—Details for working for May: Tons milled 2118, from south reef 1516, from main reef 602, stamps working 20, number of days mill ran 29½, yield of gold 1735 ounces 11 dwts., concentrates 380 ounces 17 dwts.; total 2116 ounces 8 dwts.

ZEEHAN-MONTANA.—Manager reports for month ended May 31:—"The total output of ore for month was 138 tons of first class and 385 tons seconds, containing together about 112 tons of lead and 16,792 ounces of silver, of a total estimated value of £1976. The working cost at mine for same period was £1409, leaving an estimated profit of £567."

# MINING NOTES FROM JOHANNESBURG.

By H. BUSH, M.E.

(*Cabled Weekly*).

### Luipaard's Vlei Estate.

On the Deep Levels of the mynpacht the reefs have been struck, assaying very high, so there is a chance of this company obtaining richer ore in the lower levels.

### Princess Estate.

Capitalised at about £3000 per claim. These are the cheapest shares of the Durban-Roodepoort group, and it is an absolute certainty that it will be a big mining proposition in the future, as on the western boundary, the Banket Mine is obtaining 10 dwts. from the Princess Main reef, 5 feet in width, whilst on the east boundary the United Main Mine is making 26s. a ton profit from the Princess South reef, and there is every indication that the lower levels will open up much richer than those that are now being developed.

### Champ d'Or Deep (French Rand Mine).

If there is anything sure in mining this mine is a certainty, the developments in the vicinity of late having improved this property fully 28 per cent. It is the lowest-valued, and one of the richest and best Deep Level investments in Africa, and, with the ample funds to open the mine, these shares are one of the "plums of the Rand."

### Klerksdorp Mine.

Active development is being carried out, and the latest assay from the bore-hole (which is now down 700 feet) gives 22 dwts. to the ton. This is one of the largest properties in Africa, and no less than 20 reefs traverse the whole length of the property.

### East Rand Gold and Coal Estate.

Active development is now being carried out on the coal seams, and the results are most encouraging. It is the intention of the directors to bore for the Modder reefs, which cross the property to the north.

### Angelo Mine.

The pick of the East Rand, and will turn out as rich as Knight's. Assays show that mines in this part of the field improve at depth. Shares will, when crushing commences, have a considerable rise, and should be bought and held for investment

### George and May.

There is payable gold in this mine, but the past management has been anything but good, and as the company is financially weak, it is best to leave the shares alone for some time; at the same time it is evident that too much fuss has been made over the dry process, which is not the success at this mine that the management would have us to believe.

### York Mine (late Emma).

Until the mine is opened up there is nothing to be gained by purchasing these shares, as the past history is not good enough to warrant the present price.

### Kimberley Roodepoort.

The assays are better, and there is a chance of this property turning out payable gold from the South reef.

### Simmer and Jack Deep.

Capitalised at over £1000 per claim, and with insufficient working capital. This is a very second-class investment.

### Orion Belt Mine.

This mine is not proved to be a payable one, and it is doubtful if it ever will be.

### Bantjes Mine.

It is difficult to tell the exact value of these reefs, but from the tests lately made it is shown to be a payable proposition, and there are rumours of an amalgamation with the intervening block, and these shares are certainly not above their intrinsic value, and in time will fetch higher prices.

### Langlaagte Block B.

Steadily improving assays from the lower levels. There is a first-class plant on the property, and the claims are only capitalised at one-half—the Crœsus claims—whilst the ore is of equal grade. These shares will see a higher figure in the future.

### Simmer and Jack.

Mine looking well, and surface arrangements getting into shipshape, and largely-increased outputs may shortly be looked for. This is the best lock-up of the outcrop mines on the Rand, as the property is large enough for four mines, and it will be split up in the future.

### Virginia Transvaal.

There are rumours of this company acquiring a good property in the Lydenburg district, which will make these shares valuable.

### East Rand.

I have just finished inspection of East Rand properties. Good progress is being made in all departments of the various mines. Developments show a marked improvement since last report. New Comet has almost completed the mill. Machinery and plant at best; full and complete equipment here; expect to get to work early—about the beginning of August.

### Chimes West.

The improvement in the mine is most marked. New Kleinfontein Reef formation running entirely through the claims; prospects are undoubtedly good. At surface all work is proceeding in a satisfactory manner.

### New Kleinfontein.

In the west-end prospects are decidedly encouraging. The erection of new stamps proceeding vigorously. Everything looks favourable; increased output expected within three months from date.

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THE directors of the TRANSVAAL GOLD EXPLORATION and LAND COMPANY (LIMITED) have declared an interim dividend of 1s. per share free of income tax, payable to the shareholders whose names appeared on the register on July 19.

THE first batch of allotment letters to applicants for shares in the YILGARN EXPLORING COMPANY (LIMITED) have been posted.

## *Companies and Legal Announcements.*


## BRITISH SOUTH AFRICA COMPANY.

Great Sale of
FREEHOLD BUILDING SITES in RHODESIA,
viz., in the Townships of BULAWAYO and GWELO.

Messrs. NAPIER and WEIR
have been instructed by the
BRITISH SOUTH AFRICA COMPANY,
to SELL, by PUBLIC AUCTION,
at BULAWAYO,

On Thursday and Friday, 29th and 30th August, 1895,

| | | | |
|---|---|---|---|
| 600 | Freehold Building Sites | in the Township of | Bulawayo. |
| 350 | " | " | Gwelo. |
| 100 | Freehold Suburban Sites | " | Bulawayo. |

All these Building Sites will be disposed of as Freehold Property at an Upset Price of £50, Suburban Sites £150 each.

## BRITISH SOUTH AFRICA COMPANY.

Great Sale of
FREHOLD BUILDING SITES in
RHODESIA, viz., in the City of SALISBURY, the Townships of GREENWOOD and FOREST HILL (Suburbs of Salisbury), UMTALI, and MELSETTER.

Messrs. MORRIS and CORNWALL
Have been instructed by the
BRITISH SOUTH AFRICA COMPANY,
TO SELL, by PUBLIC AUCTION,
at SALISBURY,

On Tuesday, Wednesday, Thursday, and Friday,
20th, 21st, 22nd, and 23rd August, 1895,

| | | | |
|---|---|---|---|
| 966 | Freehold Building Sites | in the City of | Salisbury. |
| 30 | " | " | Suburb of Greenwood. |
| 31 | " | " | Suburb of Forest Hill. |
| 315 | " | " | Township of Umtali. |
| 253 | " | " | Township of Melsetter. |

All the Sites will be Disposed of as Freehold Property at an Upset price of £50 each, in Salisbury, Greenwood, Forest Hill, and Umtali, and £30 each in Melsetter.

Plans of the Townships and Conditions of Sale may be seen at the offices of the British South Africa Company, 19, St. Swithin's Lane, London, E.C.

## BRAZILIAN GOVERNMENT 5 PER CENT. LOAN FOR £6,000,000 STERLING,

Of which £2,000,000 are for the Repayment of the Treasury Bills dated the 1st of February, 1895.

THE PRESIDENT OF THE REPUBLIC OF THE UNITED STATES OF BRAZIL having by a Decree, dated the 15th of July, 1895, authorised the issue of the above Loan, in conformity with Law No. 235 of the 24th of December, 1894, Article 2, paragraph 2, Messrs. N. M. ROTHSCHILD & SONS will receive Subscriptions at their office.

The Bonds will be to bearer in sums of £100, £500 and £1000 each, with coupons for Interest at the rate of 5 per cent. per annum, payable half-yearly, on the first of February and on the 1st of August in London in pounds sterling; and in Paris, Amsterdam, Brussels, and Hamburg, at the exchange of the day. Scrip will be issued, with a coupon due on the 1st of February, 1896, for £2 10s. per cent., representing six months' Interest.

The price of issue is £85 for every £100 nominal capital, payable as follows:—

£ 5 on Application.
£15 " Allotment.
£15 " the 18th of November, 1895.
£15 " the 19th of March, 1896.
£ 5 " the 11th of May, 1896.
£20 " the 16th of July, 1896.

£85

Payment in full may be made under discount at the rate of 2 per cent. per annum on any Monday or Thursday after the Scrip has been issued.

The Loan will be redeemed by an accumulative Sinking Fund of 1 per cent. per annum, to be applied half-yearly by purchase of Bonds when the price is under par, and when at or above par by drawings. The redemption of Bonds, by means of the Sinking Fund, will commence in August, 1897, but the Government reserves the right to redeem the whole or any portion of the Loan at any time, on giving six months' notice.

Subscription Lists will be Opened on Tuesday, July 23, and Closed at or before four o'clock on the same day.

Application must be made in the annexed form, and accompanied by a deposit of 5 per cent. on the amount applied for. If the allotment should not require the whole deposit, the surplus will be returned; and if the deposit be insufficient for the first instalment on the amount allotted, the balance required must be paid forthwith.

In case of no allotment being made, the deposit of the applicant will be returned.

Failure to pay any of the instalments will subject all previous payments to forfeiture.

The Scrip, after payment of the last instalment, will be exchanged for the Bonds as soon as they are ready for delivery.

Subscriptions will also be received in Paris, Amsterdam, Brussels, and Hamburg.

NEW COURT,
18th of July, 1895.

FORM OF APPLICATION.

## BRAZILIAN GOVERNMENT 5 PER CENT. LOAN FOR £6,000,000 STERLING.

To MESSRS. N. M. ROTHSCHILD & SONS,

GENTLEMEN,

.....request that you will allot to.....£.....say .....
.....Pounds Nominal Capital of the above Bonds, on which.....enclose the required deposit of five per cent., or £ ..... .....and..... ...agree to accept that amount or any less sum that may be allotted to.....and to pay the further sums due in respect of such allotment, according to the conditions of your Prospectus of the 18th July, 1895.

.....remain,
GENTLEMEN,
Your obedient Servant,

Name (at length) .....
Address.....
July , 1895.

## AUSTRALIAN MINERALS.

COLLECTIONS of AUSTRALIAN MINERALS for Show Case, or for technical purposes supplied to order. Price from £2 2s. upwards On receipt of order with remittance a collection will be made up and dispatched without delay.

MINES REPORTED ON.

J. B. AUSTIN, Mineralogist, Adelaide, S.A.


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THE directors of the JOHANNESBURG CONSOLIDATED INVESTMENT COMPANY (LIMITED) announce a dividend of 20 per cent. for the half-year ending June 30, and state that they estimate profits at about £1,000,000 for that period. Particulars of further appropriation of profits will be published on the arrival in England of the managing director, who is on his way home.

# THE METAL MARKETS.

## LONDON METAL MARKET.

THE METAL MARKET, LONDON, JULY 19.

### Copper.

THE rise in copper has made further progress, assisted by better deliveries for the first half of the month, and an improvement of nearly 1,300 tons in the statistics. On the other hand there has been a pretty general realisation of August prompts on the part of speculative brokers, but this was counteracted principally by strong buying by American speculators for a rise, who seem to have been pretty successful so far. The speculative market opened with a further advance in G.M.B.'s, £44 being paid for spot, and £44 7s. 6d. for forward. These prices induced realisations which caused a relapse of 2s. 6d. The day's business amounted to 1250 tons. About 800 tons were done on Tuesday at £44 1s. 3d. and £44 for sharp cash, and £44 6s. 3d. to £44 7s. 6d. for three months. Mid-monthly statistics showing an improvement of 1271 tons in the visible supply for the fortnight were published on Tuesday, and tended to contribute to the steadiness of the market, though exerting no immediate effect on values. Wednesday's transactions were 800 tons, and values improved to £44 2s. 6d. s.c., and £44 8s. 9d. three months, whilst spot realised £44 6s. 3d. on Thursday, and for three months £44 12s. 6d. was paid repeatedly. Thursday's turnover reached 1550 tons and to-day's 1100 tons, whilst the values realised ranged from £44 8s. 9d. to £44 6s. 3d. s.c., and £44 15s. to £44 13s 9d. three months. The market closes quiet at £44 5s. s.c., and £44 11s. 3d. three months. Consumers are buying a little more freely.

### Tin.

In spite of rather heavy shipments, the market has improved steadily throughout the week under review. On Monday there were several buying orders, and about 225 tons were done at £63 10s. to £63 15s. three months, whilst spot changed hands at £63 7s. 6d. Tuesday, with a turnover of 320 tons, brought an advance to £63 12s. 6d. s.c., and £63 18s. 9d. three months. The purchases, chiefly of three months Straits, continuing on Wednesday and Thursday, resulted in cash tin going up to £64 12s. 6d., and three months to £64 17s. 6d. To-day 470 tons were done at £65 to £64 15s. s.c., and £65 7s. 6d. to £65 2s. 6d. three months, the market closing steady at £64 15s. to £64 16s. 3d. s.c., and £65 2s. 6d. to £65 3s. 9d. three months. Billiton tin has also moved upwards day by day, commencing at fl. 38½ s.c., and fl. 38⅝ three months, and closing this morning at fl. 39 and fl. 39¼ respectively, with Banca s.c. at fl. 39¼.

### Pig Iron.

Scotch shipments last week are advised as 4471 tons as against 5300 tons for the parallel week of 1894. The Glasgow markets was closed on Monday. It opened firm on Tuesday at 47s. 10½d. s.c., but 45s. 3½d. was paid the same day, 45s. 5d. Wednesday, 45s. 6½d. Thursday, and 45s. 4d. and 45s. 3½d. to-day, the market closing easier at 45s. 3½d. Scotch, 45s. 3d. hematite, and 36s. 3d. Middlesbrough.

### Lead.

The firmness has continued unabated, though the consumptive demand has to a certain extent been appeased. We close firm at £10 13s. 9d. to £10 15s. soft foreign, and £10 15s. to £10 17s. 6d. English.

### Spelter

is quiet and without special feature at £14 6s. 3d. to £14 8s. 9d. ordinaries, and £14 10s. to £14 12s. 6d. specials.

### Antimony

is lifeless, but steady as to price, the quotation being unchanged at £32.

### Quicksilver.

Nothing new to report. The value continues at £7 5s. firsts, and £7 4s. seconds.

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The following are to-night's (July 19) prices of metals:—

| | £ | s. | d. | £ | s. | d. |
|---|---|---|---|---|---|---|
| **Copper.** | | | | | | |
| Tough cake and ingot | 47 | 0 | 0 | 47 | 10 | 0 |
| Best selected | 48 | 0 | 0 | 48 | 10 | 0 |
| Electrolytic Copper | 49 | 5 | 0 | 50 | 15 | 0 |
| Sheets and sheathing | | | | 54 | 0 | 0 |
| Flat bottoms | | | | 57 | 0 | 0 |
| Chili bars | spot, & 3 months respectively | 44 | 5 | 0 | 44 | 11 | 3 |
| Good merchantable, | | | | | | |
| Copper tubes, seamless | | | | 0 | 0 | 7½ |
| **Alloys.** | | | | | | |
| BRASS: Wire | | | | 0 | 0 | 5½ |
| " Tubes (solid drawn) | | | | 0 | 0 | 6 |
| " Sheets | | | | 0 | 0 | 5½ |
| PHOSPHOR BRONZE: Alloys II. | | | | 78 | 0 | 0 |
| " " III. or | Cog Wheel Brand | | | 81 | 0 | 0 |
| " " VII. | | | | 83 | 0 | 0 |
| " " XI. | | | | 78 | 0 | 0 |
| " " Vulcan brand A1 | | | | 72 | 0 | 0 |
| DURO METAL | | | | 73 | 0 | 0 |
| BULL'S METAL | | | | 65 | 0 | 0 |
| **Ferrobronze (Vivian's).** | | | | | | |
| Ingots ...per lb. | 0 | 0 | 5¼ | | | |
| Ordinary sheets, plates, bolts and bars | 0 | 0 | 6½ | | | |
| Screw bolts and nuts | 0 | 0 | 8 | | | |
| Pump rods, plain | 0 | 0 | 7 | | | |
| " finished | 0 | 0 | 10 | | | |
| DELTA METAL: No. 4 (per ton) | | | | | | |
| " Sheets and plates (per lb.) | | | | | | |
| " Bars, round, square, flat (per lb.) | | | | | | |
| " " hexagon (per lb.) | | | | | | |
| **Tin.** | | | | | | |
| English, ingots, f.o.b. | 63 | 10 | 0 | 63 | 0 | 0 |
| " bars | 69 | 10 | 0 | 70 | 0 | 0 |
| " refined | 70 | 10 | 0 | 71 | 0 | 0 |
| Straits, spot and 3 months respectively | 64 | 15 | 0 | 65 | 2 | 6 |
| Australian spot, and three months respectively | 65 | 10 | 0 | 65 | 17 | 6 |
| Banca " (in Holland) | 65 | 12 | 6 | 65 | 15 | 0 |
| TIN PLATES: Charcoal, best quality per box | 0 | 13 | 6 | 0 | 15 | 0 |
| " " ordinary | 0 | 11 | 0 | 0 | 12 | 0 |
| " Coke, best quality | 0 | 10 | 3 | 0 | 10 | 6 |
| " " ordinary | | | | 0 | 9 | 9½ |

*These prices of tinplates are f.o.b. at Swansea; at Liverpool 6d. per box more.*

| | | | | | | |
|---|---|---|---|---|---|---|
| **Iron.** | | | | | | |
| Pig, G.M.B., f.o.b., Clyde, spot | | | | 2 | 5 | 3½ |
| " Scotch pig, No. 1 Gartsherrie | | | | 2 | 11 | 0 |
| " " Coltness | | | | 2 | 12 | 6 |
| " " Clyde | | | | 2 | 6 | 9 |
| " " Govan | | | | 2 | 6 | 9 |
| Bars, Welsh, f.o.b. Wales | | | | 4 | 15 | 0 |
| Plates " | | | | 5 | 17 | 6 |
| Bars, Staffordshire, at works | | | | 4 | 17 | 6 |
| Sheets " " | | | | 5 | 7 | 6 |
| Plates " " | | | | 6 | 0 | 0 |
| Hoops " " | | | | 5 | 10 | 0 |
| Ship plates, Middlesborough | | | | 4 | 16 | 3 |
| STEEL: English spring | | | | 10 | 0 | 0 |
| " " cast | | | | 42 | 0 | 0 |
| " Rails at works, according to section | 3 | 10 | 0 | 4 | 10 | 0 |
| **Lead.** | | | | | | |
| Spanish or soft foreign | 10 | 13 | 9 | 10 | 16 | 0 |
| English pig, common | 10 | 15 | 0 | 10 | 17 | 6 |
| " L.B. | | | | 11 | 5 | 0 |
| " sheet | | | | 11 | 17 | 6 |
| " bar lead | | | | 11 | 17 | 6 |
| " pipe | | | | 12 | 7 | 6 |
| " red | | | | 13 | 5 | 0 |
| " white | | | | 16 | 5 | 0 |
| " patent shot | | | | 14 | 10 | 0 |
| **Spelter.** | | | | | | |
| Silesian ordinary brands | 14 | 5 | 3 | 14 | 8 | 9 |
| " special brands | 14 | 10 | 0 | 14 | 12 | 6 |
| English Swansea | 15 | 0 | 0 | 15 | 2 | 6 |
| Sheet Zinc | 17 | 10 | 0 | 17 | 15 | 0 |
| **Antimony.** | | | | | | |
| Antimony | | | | 32 | 0 | 0 |
| **Quicksilver.** | | | | | | |
| Flasks, 75 lbs. warrants | 7 | 5 | 0 | 7 | 4 | 0 |
| Ore, c.i.f., U.K. ports | per unit. | | | | | |
| Manganese. | | | | | | |
| 1st quality, 50 per cent. and upwards | 0 | 0 | 10 | 0 | 0 | 11 |
| 2nd " 47 per cent. to 50 per cent. | 0 | 0 | 9 | 0 | 0 | 10 |
| 3rd " 40 " 47 per cent. | 0 | 0 | 7½ | 0 | 0 | 9 |
| **Aluminium.** | | | | | | Per lb. |
| 93-95½ per cent. (guaranteed 93 per cent. min.) in ingots (1 cwt. lots) | | | | 0 | 1 | 7 |
| do do (1 ton lots) | | | | 0 | 1 | 6 |
| **Nickel.** | | | | | | |
| 98-99 per cent. guarantee | 0 | 1 | 2 | 0 | 1 | 3 |

# "THE MINING JOURNAL" SHARE LIST.

**ABBREVIATIONS AND REFERENCES.**—The following are the significations of the abbreviations and references which occur in the Share List:—*Ay*, Antimony; *A*, Arsenic; *Bl*, Blende; *Bx*, Borax; *C*, Copper; *D*, Diamond; *G*, Gold; *I*, Iron; *L*, Lead; *M*, Mundic; *N*, Nitrates; *P*, Phosphates; *Q*, Quicksilver; *R*, Ruby; *S*, Silver; *S-l*, Silver-lead; *Sul*, Sulphur; *T*, Tin; and *Z*, Zinc. * in the "Amount of Share" column of British Mines signifies that the mine is conducted on "Cost Book" principles; † in the "Head Office" column of African Mines signifies that the address given is not that of the head office, but of a sub, or transfer office; and †, following the names of African Mines, signifies that they are subject to the Limited Liability Law of the South African Republic.

"*" The following is by far the most complete and comprehensive list of mines, in whose shares business is being currently transacted, published. Additions will be made from time to time as occasion requires. Every effort is made to ensure accuracy, and Secretaries of Companies, Share Dealers, and our readers generally, are cordially invited to co-operate with us to this end, by notifying us of any errors that may at any time occur. We desire it to be understood that, while our Share List will almost invariably be found correct, we do not hold ourselves responsible for any loss or inconvenience that may arise from possible inaccuracies.

## BRITISH MINES.

| Name. | Closing Price, July 19, 1895 | Closing Price, July 12, 1895. | Am't. of Share | Latest Dividend | Called up Per Share. | Amount of Stock or No. of shares Issued | Situation of Mine. | Head Office |
|---|---|---|---|---|---|---|---|---|
| | | | £ s. | | £ s. d. | | | |
| Blue Hills .....*CT* | 12/6 17/6 | 12/6 17/6 | * | 2/- May, '81 | 5 19 5 | 5,353 | Cornwall | Camborne. |
| Botallack .... ...*T* | — | — | * | — | 51 4 6 | 1,880 | Cornwall | St. Just. |
| Carn Brea .....*T* | 2⅛ 2¼ | 1¼ 2⅛ | * | 2/6 Dec.,'93 | 12 8 5 | 6,000 | Cornwall | Carn Brea. |
| Cook's Kitchen ..*T* | ¼ ⅜ | 5/ 10/- | * | — | 35 15 10 | 4,900 | Cornwall | Camborne. |
| Devon Gawton *CA* | par ¼ pm. | par ¼pm. | 1 0 | — | 0 12 6 | 25,000 | Tavistock | 8, Finsbury circus. |
| Devon Gt Cons.*CA* | 1⅛ 1¼ | 1⅛ 1⅜ | 5 0 | 1/6 May '95 | 2 0 0 | 10,240 | Devon .. | 8, Finsbury circus. |
| Dolcoath .....*T* | 46 47 | 45 47 | * | 12/6 Apr. '94 | 9 12 6 | 4,700 | Cornwall | Camborne. |
| Drakewalls *CTM* | — | — | 0 8 | — | 0 2 0 | 61,856 | Cornwall | Dashwood House. |
| East Halkyn..... ... | 20/- 25/- | 20/ 25/ | 1 0 | — | 0 12 6 | 12,000 | Flintshire | 67, Lord St., Liverpl. |
| East Pool .....*AT* | 5 5⅛ | 5 5⅛ | * | 1/6 Sept, '94 | 0 9 9 | 8,400 | Cornwall | Illogan. |
| Gawton .....*CA* | — | — | 2 10 | — | 2 7 0 | 12,000 | Devon .. | 20, Great St. Helens. |
| Great Laxey.....*L* | 1 2 | 1 2 | 4 0 | 5/- Apr., '92 | 4 0 0 | 15,000 | I. of Man | Douglas, Isle of Man. |
| Green Hurth ....*L* | 1/8 | 1/8 | 1 0 | -/6 June '89 | 0 19 0 | 32,000 | mberlnd | Newcastle. |
| Halkyn .... ... *L* | 9 10 | 9 10 | 1 0 | 2/- June, '95 | 1 0 0 | 10,000 | Flintshire | Chester. |
| Do. Dis. Mn. Drain | 10 11 | 10 11 | 10 0 | 4/- Mar. '95 | 10 0 0 | 10,000 | Flintshire | Corn Ex. Cmb. Chestr. |
| Isle of Man .....*L* | 3¾ 4¼ | 3¾ 4¼ | 5 0 | 2/- — 95 | 5 0 0 | 11,000 | I. of Man | Chester. |
| Killifreth .....*T* | 9/ 11/ | 7/6 12/6 | * | 1/6 Nov.,'94 | 5 11 6 | 6,000 | Cornwall | Truro. |
| Leadhills .....*L* | ⅞ 1⅛ | 15/ 20/ | 8 0 | 3/- Sep. '92 | 6 0 0 | 20,000 | Lanarksh. | 30, Finsbury-circus. |
| Llanarmon ..... | par | par | 1 0 | — | 1 0 0 | 21,99 | Denbigh | 8, Werburgh Chmbrs |
| Llanarmon ... ... | par | par | 1 0 | — | 0 15 0 | 3,790 | Flintshire | Chester. |
| Levant .....*CT* | 4¼ 5 | 4¼ 5 | * | 4/- Nov., '94 | 11 9 6 | 2,500 | Cornwall | Penzance. |
| Lovell .....*T* | — | — | * | 1/3 Nov., '91 | 1 16 7 | 7,165 | Wendron | 3, Gt. Queen-st., S.W. |
| Miners.....*L* | — | — | 5 0 | 5/6 Mar. '90 | b 0 0 | 9,000 | Denbghsh | Miners, N. Wales. |
| Nenthd&Tndle.*LZ* | 3/6 | 3/6 | 1 0 | 6¾ Feb., '91 | 0 18 0 | 48,8 5 | Nthumbld | Newcastle-on-Tyne |
| NewCooksKitn.*TC* | — | — | * | — | 10 18 3 | 4,900 | Cornwall | Camborne. |
| New Minera ..... | — | — | 1 0 | 1/- Oct., '92 | 1 0 0 | 30,000 | N Wales... | 6, Queen-street-place. |
| North Hendre ..... | — | — | 2 10 | 8 p c year 82 | 2 10 0 | 11,854 | Flintshire | 11, Nwgt. st., Chstr. |
| Parc .....*LZ* | — | — | 1 0 | — | 1 0 0 | 5,000 | Llanrwst... | Billiter sq. buildings |
| Phœnix United*TC* | 1/8 2/- | 1/6 2/ | * | 1/- Mar. '90 | 7 4 6 | 10,666 | Cornwall | Liskeard. |
| Polberro .....*T* | ⅗ 1 | 15/ 20/ | * | — | 3 7 9 | 18,000 | Cornwall | 37, Walbrook. |
| Rhosemor ..... *L* | par | par | 1 0 | 10 p c Sept. 91 | 1 0 0 | 1,000 | Flintshire | Corn Ex. Cmb. Chestr. |
| Rhosemor .....*L* | par | par | 1 0 | — | 0 19 0 | 18,000 | Flintshire | Corn Ex. Cmb. Chestr. |
| So. Condurrow *TC* | 2/6 7/6 | 2/6 7/6 | * | 3/6 Apr. '93 | 7 17 6 | 6,123 | Cornwall | 20, Great St Helens |
| South Crofty *TA* | 10/ 15/ | 10/ 15/ | * | — | 17 10 6 | 5,769 | Cornwall | Pool, Cornwall. |
| S. Frances Untd. *T* | 5/- 10/- | 5/- 10/- | * | — | 2 7 6 | 8,000 | Cornwall | Redruth. |
| South Halkyn ..... | par | par | 1 0 | — | 1 0 0 | 10,000 | Flintshire | 8, Werburgh Chmbrs |
| South Halkyn ..... | par | par | 1 0 | — | 0 7 0 | 30,00 | Flintshire | 8, Werburgh Chmbrs |
| Talacre .. ..... | par | par | 1 0 | — | 0 16 0 | 20,000 | Flintshire | 84, Forgate st., Chstr |
| Tincroft .....*T* | 7½ 8 | 6¾ 7¼ | * | 2/- Aug. '94 | 15 7 6 | 6,000 | Cornwall | Carn Brea. |
| Weardale .....*L* | 8/9 | 8/9 | 4 0 | 1/3 Oct. '90 | 1 10 0 | 80,000 | Durham... | 3, Lombard-court. |
| West Frances ...*T* | 15/- 20/- | 15/- 20/- | — | 2/6 May, '89 | 17 1 7 | 6,144 | Cornwall | Camborne. |
| West Kitty .....*T* | 5 5½ | 5 5⅝ | * | 2/- Dec, '94 | 1 2 0 | 6,000 | Cornwall | 37, Walbrook. |
| Wheal Agar ..*TA* | 7/6 7/8 | 2/6 7/6 | * | 2/6 Aug. '88 | 23 15 2 | 8,000 | Cornwall | Redruth. |
| Wheal Basset ...*TC* | 30/ 35/ | 30/ 35/ | * | 10/- Apr.'88 | 12 3 0 | 6,144 | Cornwall | Redruth. |
| Wheal Friendly..*T* | -/6 1/- | -/6 1/- | * | — | 0 12 9 | 10,000 | Cornwall | 110, Cannon-st., E.C. |
| Wheal Grenville *T* | 12¾ 12⅝ | 12 13 | * | 2/6 Nov. '94 | 18 2 0 | 6,000 | Cornwall | 7, Union-court, E.C. |
| Wheal Kitty.....*T* | 2/ 4/ | 2/- 4/- | * | 3/- Mar. '88 | 4 5 6 | 8,590 | Cornwall | Truro. |
| Wheal Metal &*F.T* | — | — | * | — | 0 13 9 | 10,784 | Cornwall | 14, Broad-street. |

## AUSTRALIAN AND NEW ZEALAND MINES.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Abbotts .....*G* | 1⅝ 1¼ | 1⅝ 1⅝ | 1 0 | — | 0 17 6 | 67,000 | M'rchison | 17, Old Broad st. |
| Achilles Gld Fld. | 3/10½ 4/1½ | 3/9 4/- | 2/6 | — | 0 2 6 | 642,456 | N.Zealand | Poultry. |
| Aladdins Lamp *G* | 1⅛ 1¼ | 1⅛ 1¼ | 1 0 | -/6 July 95 | 1 0 0 | 100,000 | N S.Wales | 4-8, Throg. Avenue. |
| Assoc. Gold Mines | 1⅝ 1⅝ | 1⅝ 1⅝ | 1 0 | — | 1 0 0 | 375, 00 | Coolgardie | 20, Bucklersbury |
| Austin..... ..... *G* | 1⅛ 1⅛ | 1⅛ 1⅛ | 1 0 | — | 1 0 0 | 50,000 | Murchison | 23, College hill, EC |
| Australasian .....*G* | 3/- 4/- | 2/- 3/- | 1 0 | -/6 Mar., '92 | 1 0 0 | 210,000 | Queensland | 6, Queen-st. place |
| Australian .....*C* | — | — | 20 0 | 1/6 July '94 | 7 7 6 | 18,315 | S. Austral. | 15, Old Jewry Chbrs |
| Aus. Bro. Hill Con. | 3/ 3/6 | 2/6 3/6 | 1 0 | 1/- June, '91 | 1 0 0 | 537,138 | N.S.Wales | Dashwood House. |
| Baker's Creek ...*G* | ¾ ⅞ | ¾ ⅞ | 1 0 | 1/- May '95 | 0 17 6 | 100,000 | N.S.Wales | Hillgrove, N.S.Wales |
| Bayley's Reward *G* | 9/6 10/6 | 9/9 10/3 | 1 0 | -/4 Dec. '94 | 1 0 0 | 480,000 | Coolgardie | Bloomfield Ho., E.C. |
| Big Blow .....*G* | 1⅛ 1⅛ | 1⅛ 1⅛ | 1 0 | — | 0 15 0 | 100,000 | Coolgardie | Bloomfield Ho., E.C. |
| Blackett's Claim *G* | ⅜ ½ | 7/16 9/16 | 1 0 | — | 1 0 0 | 60,000 | Coolgardie | Winchester House |
| Bonnie Dundee *G* | 14/ 15/ | 14/ 15/ | 1 0 | — | 1 0 0 | 80,098 | N Zealand | 6, Gt. St. Helens' |
| Brilliant..... .....*G* | 1⅛ 1⅛ | 1⅛ 1⅛ | 2 0 | -/4 May '95 | 2 0 0 | 250,000 | Queensland | Charters Towers, |
| Brilliant Block ...*G* | 1⅞ 2 | 1⅞ 2 | 2 0 | -/6 July '95 | 2 0 0 | 250,000 | Queensland | 3, Gracechurch-st. |
| Brilliant, St. Geo. | 1¼ 1¾ xd | 1⅝ 1¾ | 0 10 | 6d. June '95 | C 6 3 | 72,000 | Queensland | Charters Towers. |
| Brit. Brok. Hill *S* | — | — | 1 0 | — | 1 0 0 | — | N.S.Wales | Dashwood Ho., E.C. |
| Brit. Broken Hill ... | — | — | 0 8 | — | 0 8 0 | — | N.S.Wales | Dashwood Ho., E.C |
| Broken Hill Prop. | 1⅛ 2⅛ | 1⅞ 2 | 0 8 | 1/- July '95 | 0 8 0 | 960,000 | N.S.Wales | Dashwood Ho., E.C. |
| Cashman Bril.... *G* | — | ¾ ⅞ | 1 0 | — | 1 C 0 | 6 ,000 | Coolgardie | Winchester House. |
| Carrington.... .....*G* | 10/ 11/ | 10/6 11/6 | 12/6 | — | 0 12 6 | 100,0 7 | Queensland | 9, Tokenhouse Yard; |
| Con. G. M. of W. A. | ⅞ 1 | 15/16 15/16 | 1 0 | — | 0 12 6 | 90,000 | W.Austral | 14, Hill st., Edinboro' |
| Coolgardie .....*G* | 1/3 1/9 | 1/- 1/6 | 0 2 | — | 0 0 6 | 40,000 | Coolgardie | Winchester House. |
| Coolgardie(Shriwe) | 16/ 16/6 | 16/6 17/6 | 1 0 | 30⅞ June 95 | 0 8 3 | — | Coolgardie | Broad Street Avenue. |
| Craven's Cal. ... *G* | 3/ 4/ | 3/- 4/- | 0 8 | -/3 June 94 | 0 4 8 | 100,000 | Queensland | 30-1, 8. Swithin's-le. |
| Crown Bayley's..*G* | 1/16 ⅛ pm | 1/16 ⅛ pm | 1 0 | — | 0 10 0 | 80,000 | Coolgardie | Bishopsgate Ho. E.C. |
| Cumbrind (New)*G* | 2/ 3/6 | 3/6 4/6 | 1 0 | 2/6 Dec, '87 | 0 19 0 | 184,000 | Queensland | Bloomfield House.E.C |
| DayDawn B.&W.*G* | 9/6 10/6 | 9/6 10/6 | 1 0 | -/6 Mar. 93 | 1 0 0 | 498,400 | Queensland | 3-5, Gracechurch-st. |
| Day Dawn P. C. *G* | 5/ 5/6 | 5/3 5/9 | 1 0 | -/6 Apr. '92 | 1 0 0 | 490,000 | Queensland | Winchester Ho., E.C |
| Eaglehawk.....*G* | 1/ 1/6 | — | 1 0 | — | 0 19 9 | 120,000 | Victoria... | 31, Lombard-street, |
| Empress Coolge. *G* | ¾ ⅞ dis. | ¾ ⅞ dis | 1 0 | — | 0 10 0 | 90,000 | Coolgardie | 2, Tokenhouse bldgs |
| Eng. & Aus.Cop.Cs | 1/16 | 1/16 | 2 0 | 2⅞ 1883 | 1 17 6 | 70,000 | S. Austral. | 136, Palmerston-bldg |
| Glenrock ..... *G* | 1/6 2/ | 1/6 2/- | 1 0 | — | 1 0 0 | 225,000 | N.Zealand | 3-5, Queen-st. E.C. |
| Golconda .....*G* | 1 1⅝ | 1 1⅝ | 1 0 | — | 1 0 0 | 68,088 | Murchison | Winchester House |
| Gold Estates .... | 1⅛ 1⅜ | 1⅛ 1⅝ | 1 0 | — | 0 10 0 | 60,000 | W.Austral | 42, Gresham House. |
| Great Boulder ...*G* | 4¼ 4⅜ | 4¼ 4¾ | 1 0 | 2/- July '95 | 1 0 0 | 119,280 | Yilgarn .. | 3, Gracechurch st. |
| Great Coolgardie... | ⅛ ¼ | 5/16 7/16 | 1 0 | — | 0 15 0 | 85,000 | Coolgardie | 3. Budge Row. |
| Great Fingall Rfs. | ¾ 1 | ¾ 1 | 1 0 | — | 1 0 0 | 175,000 | Kurnalpi | Broad Street House. |
| Golden Gate.....*G* | — | — | 0 10 | — | 0 10 0 | 150,000 | Queensland | 9, Tokenhouse Yard. |
| Hampton Lands... | 5⅛ 5⅜ | 5 5⅛ | 1 0 | 10/- Nov. '94 | 1 0 0 | 64,075 | Coolgardie | 1, Whittington Avue |
| Hampton Plains... | 2⅞ 3 | 2⅞ 3 | 1 0 | — | 0 4 0 | 350,000 | Coolgardie | 29, 8. Swithin's lane |
| HamptonPlainsEx | 8/6 9/6 | 8/6 9/6 | 1 0 | — | 0 18 0 | 180,000 | | Suffolk House, E.C. |
| Hannan's BrwnHil | 1⅞ 2⅛ | 1⅝ 1⅞ | 1 0 | — | 1 0 0 | 65,000 | Coolgardie | Broad Street House. |
| Hauraki..... *G* | 13/ 14/ xd | 13/- 14/xd | 2/6 | 2/6 July '95 | 9 2 6 | 250,000 | Coromndl. | Dashwood Ho.; E.C. |
| Kaboonga .....*G* | 2/9 3/3 | 3/3 3/9 | 0 10 | — | 0 9 9 | 500,000 | Queensland | 70-71, Bishopsgate st. |
| Kangarilla .....*S* | 6/ 7/ | 5/6 6/6 | 1 0 | — | 1 0 0 | 88,275 | So.Austral | 68, Coleman street, |
| Kapanga.....*G* | 10/ 11/ | 10/6 11/6 | 1 0 | -/6 Jan. '91 | 0 19 6 | 250,000 | N.Zealand | 9, New Broad-street. |
| Kinsella .....*G* | 1⅛ 1⅛ | 1⅛ 1⅛ | 1 0 | — | 1 0 0 | 80,000 | Murchison | 33, Broad-st. Avenue |
| Kurnalpi.....*G* | 11/ 12/ | 11/ 12/ | 1 0 | — | — | — | Coolgardie | Throgmorton House |
| Lady Loch..... | ¾ 1 | 1⅛ 1⅝ | 1 0 | — | 1 0 0 | 70,000 | Coolgardie | 9, Tokenhouse Yard, |
| Lady Mary Amalg. | 2¼ 2⅝ | 2⅜ 2⅝ | 1 0 | — | 1 0 0 | 46,000 | Murchison | Bloomfield House, |
| Lindsay ..... ..... | ⅝ ⅞ dis. | ⅝ ⅞ dis | 1 0 | — | 0 10 0 | 65 00 | Coolgardie | Copthall House |
| Londonderry..... *G* | 1⅛ 1⅜ | ⅝ ¾ | 1 0 | — | 1 0 0 | 46 ,000 | Coolgardie | 3, Gracechurch-st. |
| L.& W. Aust. Expl. | 2⅛ 2⅝ | 2⅞ 2⅝ | 1 0 | 20 p.c. Dec, '94 | 1 0 0 | 10 ,000 | W.Austral | Broad Street Ho. |
| Mainland Cons. *G* | 1⅝ 1⅞ | 1⅝ 1¾ | 1 0 | — | 0 15 0 | 150, 00 | Murchison | 5 Old Broad Street |
| Mawson'sRewrd.*G* | ¾ 1 | ⅝ ⅞ | 1 0 | — | 0 10 0 | 60,000 | W.Austral | 28 & 29, 8 Swithin's ln |
| Milis' Day Dawn*G* | 1 1⅜ | 1 1⅜ | 1 0 | -/6 May '95 | 1 0 15 6 | 300,000 | Queensland | 3, Gracechurch-st. |
| Mosman .....*G* | 5/8 6/6 | 5/ 6/- | 1 0 | — | 1 0 0 | 58,235 | N.S Wales | 16, St. Helen's-place. |
| Mt. Leyshon .....*G* | — | — | 1 0 | -/6 Dec. '90 | 1 0 0 | 157,989 | Queensland | 7, Draper's-gardens. |
| Mount Morgan *G* | 2¼ 2¾ xd | 2⅛ 2¾ | 1 0 | -/6 June, 95 | 0 17 6 | 1,000,000 | Queensland | 9, Gracechurch-st. |
| Mount Zeehan *SL* | -/6 1/- | -/6 1/ | 1 0 | — | 1 0 0 | 193,257 | Tasmania | Mansion Ho. Cham. |
| Murchison Gift ... | 3/6 4/ | 3/6 4/ | — | — | — | — | — | — |
| Murchison Gold ... | 5/ 7/ | 6/6 7/- | — | — | — | — | — | — |
| N. Australian G. F. | 19/- 20/- | 19/ 20/ | 1 0 | -/6 June, '95 | 0 19 6 | 20,000 | — | 7, Union Court, |
| New Queen .....*G* | 8/ 9/ | 7/6 8/6 | 1 0 | — | 1 0 0 | 158,915 | Queensland | 30, St. Swithin's-le. |
| North Coolgardie.. | 1/ 2/ | 1/ 1/6 | 0 5 | — | 0 4 0 | 85, 00 | Pilbarra ... | 22B, Winchester Ho. |
| N. Q'ld. M.Agency | 2 2¼ | 2¼ 2¼ | 1 0 | 2/6 Jan. '95 | 1 0 0 | 90,000 | Queensland | 10 New Broad Street |
| Queen's Bthdy Un. | 13/ 14/ | 13/- 14/- | 1 0 | — | 0 12 6 | 75,000 | Victoria... | 7-8, Gt. Winchster St. |
| Sam's With.of Nat. | 3/6 4/6 | 3/6 4/- | 1 0 | — | C 18 0 | 200,000 | W.Austral | 33, Old Broad Street. |
| Scottish Australian | ⅛ ¾ | ¼ ⅜ | 1 0 | -/3 May, '95 | 1 0 0 | 200,00 | N.S Wales | Winchester Ho. E.C. |
| Victoria Associatn. | — | — | 1 0 | -/6 July, '95 | 1 0 0 | 144,000 | Chr. Tow. | 6, Crosby-square |
| Victory..... .....*G* | 8/ 9/ | 8/- 8/6 | 0 5 | -/3 Mar., '94 | 0 5 0 | 200,000 | Queensland | 32, Gresham-st., E.C |
| Waihi ..... .....*G* | 5⅜ 5¾ | 5⅞ 6⅛ | 1 0 | 2/- June '95 | 1 0 0 | 150,000 | N.Zealand | 11, Abchurch-la. E.C |
| Waratah..... .....*G* | 8/ 9/ | 8/6 9/6 | 0 10 | — | 0 10 0 | 6,000 | Crydn, N.Z | 43, Threadneedle st. |
| Wentworth Exten. | 3/16 ⅜ | 3/16 ⅜ | 0 5 | — | 0 5 0 | 178,828 | N.S Wales | 19, 8. Swithin's Lane |
| Wentworth ....*G* | 1⅝ 1¾ | 13/8 15/6 | 1 0 | 1/- Aug '95 | 1 0 0 | 350,000 | N.S Wales | 4-6, Throgmort, Av. |
| W. Argentine ....*G* | 1/8 2/- | 1/8 2/- | 1 0 | — | 0 19 6 | 150,000 | N.Zealand | 3-5, Queen-street. |
| W. Aust. G.Concss | 1⅞ 1⅞ | 1⅞ 1⅞ | 1 0 | 20⅞ May '95 | 1 0 0 | 17,500 | W.Austra. | 33, Old Broad st., EC |
| W. Aus. Exploring | 2⅛ 2 3/16 | 2⅛ 2⅛ | 1 0 | — | 0 15 0 | 200,000 | W.Austral | 54, Old Broad st., EC |
| W.Australian G.F. | 4⅜ 4⅝ | 3⅞ 4⅛ | 1 0 | 2/6 Dec., 94 | 1 0 0 | 65,000 | Coolgardie | 28-29, 8. Swithin's-la. |
| W. Aust. Mining | 3/8 4/6 | 3/6 4/6 | 1 0 | — | 1 0 0 | 104,297 | W.Austral | 257, Winchester Ho, |
| W. Mallina .. ...*G* | 3/- 3/6 | 3/- 3/6 | 0 5 | — | 0 3 0 | 80,000 | Pilbarra ... | Winchester House. |
| White Feather ... | 2⅝ 2¾ | 2⅝ 2¾ | 1 0 | — | 1 6 0 | 60,000 | Coolgardie | 28 & 29, 8. Swithin's ln |
| Zapopan .....*G* | 7/6 8/ | 7/6 8/ | 1 0 | — | 1 0 0 | 25,000 | N W Austra | 70, Bishopsgate-street |
| Zeehan Montana *S* | — | — | 1 0 | -/4 May 95 | 1 0 0 | 66,000 | Tasmania | 11, Queen Victoria st |
| Zeehan Montana *S* | — | — | 1 0 | 2½ May 95 | 0 2 6 | 12,000 | Tasmania | 11, Queen Victoria st |

## EUROPEAN MINES.

| Name. | Closing Price, July 19, 1895 | Closing Price, July 12, 1895. | Am't. of Share | Latest Dividend. | Called up per Share. | Amount of Stock or No. of Shares Issued. | Situation of Mine. | Head Office. |
|---|---|---|---|---|---|---|---|---|
| | | | £ s. | | £ s. d. | | | |
| Alamillos .....*L* | 9/16 11/16 | ⅜ ⅝ | 2 0 | -/6 April '95 | 2 0 0 | 35,000 | Spain ..... | 8, Queen-street-place |
| Avala .....*Q* | 0 ⅜ | 0 ⅜ | 1 0 | 1/- May '93 | 1 0 0 | 51,584 | Servia..... | 4, Tokenho. Bldgs. |
| Consett Ore ..... | 5½ | 5¼ | 1 0 | 5/- July '94 | 1 0 0 | 55,200 | Spain ..... | 19, Grey-st., N'castle |
| English Cr. Spelter | ⅜ ⅝ | 3/8 ⅝ | 1 0 | 2½⅞ Aug. '94 | 1 0 0 | 84,000 | Lombardy | 9, Queen-street-place |
| Fortuna ... .....*L* | 15/16 11/16 | 13/16 15/16 | 2 0 | 1/- April '95 | 2 0 0 | 25,000 | Spain ..... | 6, Queen-street-place |
| Libiola.....*C* | 3¾ 3½ | 3¼ 3½ | 5 0 | 4/6 Apr. 95 | 5 0 0 | 50,400 | Italy ..... | Dashwood Ho., E.C. |
| Linares .....*L* | 4¼ 4¾ | 4¼ 4¾ | 3 0 | 4/6 April '95 | 3 0 0 | 14,998 | Spain ... | 6, Queen-street-place |
| Mason & Barry...*C* | 2⅜ 2⅞ | 2⅜ 2⅞ | 5 0 | 2/- May. '94 | 5 0 0 | 135,172 | Portugal | 87, Cannon-street. |
| Oscar .....*G* | — | — | 5 8 | — | 0 4 8 | 117,24w | Norway ... | 6A, Austin Friars. |
| Pestarena .....*G* | 4/6 5/6 | 4/- 5/- | — | — | 3 0 0 | 67,°09 | Italy ..... | 6-7, Queen-street-pl. |
| Pontgibaud .....*SL* | — | — | 20 0 | 11/6 Dec. '94 | 20 0 0 | 14,000 | Cqueron... | 6-7, Queen-street-pl. |
| Rio Tinto .....*C* | 16¾ 16⅝ | 16¾ 16⅝ | 10 0 | 5⅞ July, '95 | 10 0 0 | 325,000 | Spain ..... | 30, St. Swithin's-lane |
| Do. (Mort. Bonds) | — | — | 100 0 | 5⅞ July, 95 | 100 0 0 | £1894,740 | Spain ..... | 30, St. Swithin's-lane |
| Do. (2nd do.) ..... | — | — | 100 C | 5⅞ July. '95 | 100 0 0 | £1024,860 | Spain ..... | 30, St. Swithin's lane |
| Do. (3rd do.) ..... | — | — | 100 C | 5 p.c. Apr. 95 | 100 0 0 | £5 7,080 | Spain ..... | 30, St. Swithin's lane |
| Ripanji .....*Q* | 2/6 3/6 | 2/6 3/6 | 1 0 | — | 0 19 0 | 95,000 | Servia ..... | 20, Bishopsgt-st. Wn[ |
| Tharsis.....*C Sul* | 4⅜ 4⅞ | 4⅜ 4⅞ | 2 0 | 4/- May, '95 | 2 0 0 | 620,000 | Spain ... | Glasgow. |
| West Prus Pre.pref | — | — | 10 0 | 8⅞ July '95 | 10 0 0 | 365 | Germany | Walbrook Ho., E.C. |
| West Prussian Pre. | — | — | 10 0 | 8⅞ July '95 | 10 0 0 | 5,480 | Germany | Walbrook Ho., E.C. |
| West Prussian Or. | — | — | 10 0 | 8⅞ July, '95 | 10 0 0 | 14,050 | Germany | Walbrook Ho., E.C. |
| Wohlfahrt .....*L* | — | — | 1 0 | 3½ Dec. '94 | 1 0 0 | 99,634 | Prussi ... | 17, Victoria-st., S.W. |
| Wohlfahrt ..... | — | — | 1 0 | 3½ Dec. '94 | 0 10 0 | 9,090 | Prussia ... | 17, Victoria-st., S.W. |

## INDIAN AND ASIATIC MINES.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Asia Minor Pref. *St.* | — | — | 0 10 | — | 0 10 0 | 42,430 | Asia Minr | 2, Metal Ex. Bldgs. |
| Do. Ord. ... | — | — | 0 10 | — | 0 10 0 | 59,838 | Asia Minr | 2, Metal Ex. Bldgs. |
| Balaghat Mysore*G* | 4/ 4/6 | 4/- 4/6 | 1 0 | — | 0 19 C | 159,945 | India ..... | 5-7, Queen-street-pl. |
| Burma Ruby.....*R* | 16/6 17/6 | 18/- 19/- | 1 0 | — | 0 18 0 | 298,551 | Burmah... | Suffolk House, E C. |
| ChampionReef...*G* | 4⅝ 4⅞ | 4⅝ 4⅞ | 1 0 | 4/- Apr. '95 | 1 0 0 | 200,000 | India ..... | 6-7, Queen-street-pl. |
| Colar Central ...*G* | 1/6 2/- | 2/- 2/6 | 1 0 | — | 1 0 0 | 200,000 | India ..... | Dashwood Ho., E.C. |
| Coromandel..... *G* | ⅛ ⅜ | ⅛ ⅛ | 1 0 | — | 0 15 0 | 95,000 | India ..... | 6-7, Queen-st.-place. |
| GoldFldsMysore*G* | 23/6 24/6 | 24/6 25/ | 1 0 | 1/- July '91 | 1 0 0 | 275,000 | India ..... | 6-7, Queen-street pl. |
| Hyderabad Dec.... | 4⅛ 4⅜ | — | 10 0 | — | 10 0 0 | 115,000 | Deccan ... | 16, St. Helen's-place. |
| Kempinkote GdFd | 2/3 2/9 | 1/6 2/ | 0 5 | — | 0 3 6 | 750,000 | India ..... | 6-7, Queen-st.-place. |
| Mysore ..... *G* | 2⅜ 2⅞ | 211/16 212/16 | 1 0 | 2/6 June '95 | 1 0 0 | 248,354 | India ..... | 6-7 Queen-street pl. |
| My. Harnhalli ...*G* | 2/- 3/- | 3/ 3/6 | 1 0 | — | 0 18 0 | 100,007 | India ..... | 2, East India Avenue |
| Mysore Reefs ...*G* | 9/6 10 6 | 9/6 10/- | 1 0 | — | 1 0 0 | 160,000 | India ..... | 6-7, Queen-street-pl. |
| Mysore West(N)*G* | 18/6 19/6 | 19/- 20/- | 1 0 | — | 0 19 0 | 127,408 | India ..... | Dashwood Ho., E.C. |
| Mysore Wynaad *G* | 18/6 19/6 | 19/- 20/ | 1 0 | — | 0 19 0 | 125,000 | India ..... | Dashwood Ho.. E.C. |
| Nine Reefs .....*G* | 2/6 3/- | 2/3 2/9 | 0 10 | — | 0 10 0 | 250,000 | India .... | 6-7, Queen-street-pl. |
| Nundydroog.....*G* | 1⅞ 2 | 115/16 2 1/16xd | 1 0 | 1/6 July. '95 | 1 0 0 | 200,000 | India ..... | 6-7, Queen-street-pl. |
| Ooregum (Df.O.)*G* | 31/16 39/16 | 3½ 3⅝ | 1 0 | 2/- Aug. '95 | 1 0 0 | 145,000 | India ..... | 6-7, Queen-street-pl. |
| Do. (10⅞ Pref.). | 4⅛ 4¼ | 4 4¼ | 1 0 | 4/- Aug. 95 | 1 0 0 | 107,011 | India ..... | 6-7, Queen-street-pl |
| Do. (10⅞ Pref.). | 3⅜ 3⅝ | 3⅜ 3⅝ | 1 0 | 2/6 Apr, '95 | 0 5 0 | 12,989 | India ..... | 6-7, Queen-street-pl. |
| Panang Kabang *T* | 1/16 3/16 | 1/16 3/16 | 1 0 | — | 1 0 0 | 200,000 | Malay Pn. | 4a, Jeffrey's sq., E.C |
| Straits Developmt. | 1⅜ 1⅝ | 111/16 113/16 | 1 0 | — | 0 19 0 | 189,292 | Pahang ... | 15, Copthall Avenue, |
| Yerrakonda .....*G* | 2/ 2/6 | 2/ 3/ | 0 4 | — | 0 2 6 | 187,491 | Mysore ... | 6-7, Queen-street-pl. |

## NORTH AMERICAN MINES.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Alaska Mexican...*G* | 1⅜ 1⅝ | 1⅜ 1⅝ | $5 | 7 1-5d. Apr. 95 | $5 | 160,000 | Alaska..... | 30, St. Swithin's-la |
| Alaska Treadwell*G* | 4¼ 4½ | 4⅜ 4½ | $25 | 1/6 Jan., '95 | $25 | 200,000 | Alaska... .. | 30, St. Swithin's-la. |
| Almada and T... *S* | -/6 -/9 | -/6 -/9 | 2/6 | — | 0 1 10 | 351,008 | Mexico ... | 6, Queen-street-place |
| American Belle...*S* | 1/- 1/6 | 1/3 1/9 | 1 0 | -/6 Mar. '91 | 1 0 0 | 398,890 | Colorado | 25A, Old Broad-street |
| Anglo Mexican ...*S* | — | — | 5 C | 3/- Jan. '90 | 5 0 0 | 74,850 | Mexico ... | 23, College Hill. |
| Arizona (Pref.) Cu | 49/- 49/6 | 24/9 35/8 | 4 0 | 1/- July '95 | 4 0 0 | 158,920 | Arizona ... | 74, Geo.-st., Edinbor |
| Do. 6½ A Deben. | 102 | 101 | 100 0 | 6½⅞ May '95 | 100 0 0 | £135,300 | Arizona ... | 7½, Geo.-st., Edinbor |
| Do. 7⅞ B Deben. | 94 | 90 | 100 0 | 7⅞ May '95 | 100 0 0 | £181,300 | Arizona ... | 74, Geo. st. Edinbor |
| Big Creek ..... *Ay.* | — | — | 1 0 | 1/- Dec. '91 | 1 0 0 | 50,000 | Nevada ... | 11, Queen Victoria-st. |
| California .....*G* | — | — | 0 10 | -/6 May 90 | 0 10 0 | 621,808 | Colorado | St. George's Ho. E.C. |
| Colorado Boy.....*S* | — | — | 1 0 | — | 1 0 0 | 112,492 | Colorado | 1 , Poultry, E.C. |
| Cortez .....*S* | — | — | 1 0 | 3⅞ Feb. '93 | 1 0 0 | 300,000 | Nevada ... | Suffolk House, E.C. |
| Decatur.....*Si.* | — | — | 1 0 | — | 1 0 0 | 32,500 | Colorado | 35, Queen Victoria-st. |
| Do..... (Pref.) | — | — | 1 0 | — | 1 0 0 | 12,500 | Colorado | 35, Queen Victoria-st |
| De Lamar.....*GS* | 1⅛ 1¼ | 1 1/16 1⅛ | 1 0 | 1/- July '95 | 1 0 0 | 400,000 | Idaho ..... | 6, Draper's-gardens. |
| Dickens Custer*GS* | 1/9 2/3 | 1/9 2/3 | 1 0 | — | 0 19 9 | 420,000 | Idaho..... | Winchester Ho. E.C |
| Elkhorn .....*S* | 5/- 7/- | 6/6 7/6 | 1 0 | -/3 July '95 | 1 0 0 | 175,007 | Montana | 6, Draper's-gardens. |
| Emma .....*S* | 1/- 1/3 | 1/- 1/3 | 0 5 | — | 0 5 0 | 403,618 | Utah ..... | 15, Geo-st., Mansn. Ho |
| Flagstaff .....*S* | — | — | 1 0 | — | 0 18 9 | 240,000 | Utah .... | Dashwood Ho., E.C. |
| Fisk..... *G* | — | — | 1 0 | 6d May, 94 | 1 0 0 | 134,000 | Colorado | 5, Fenchurch st. |
| Gen. M'g. Assoc. ... | 6⅛ 7 | 6 6⅛ | 5 10 | 14/- Apr. 95 | 5 10 0 | 27,469 | C. Breton | Bloomfield House. |
| Golden Feather

## "THE MINING JOURNAL" SHARE LIST—(Continued)

### SOUTH AND CENTRAL AMERICAN MINES—(*Continued*).

| Name. | Closing Price, July 19, 1895 | Closing Price July 12, 1895. | Am't. of Share | Latest Dividend. | Called up Per Share. | Amount of Stock or No. of Shares Issued. | Situation of Mine. | Head Office. |
|---|---|---|---|---|---|---|---|---|
| | | | £ s. | | £ s. d. | | | |
| Huanchaca .....S | — | — | 5 0 | 4/- Sept. '94 | 5 0 0 | 320,000 | Bolivia .. | 10, Avnu. d'Alma, Paris |
| Javali .....C | — | — | 0 2 | | 0 2 0 | 185,234 | Nicaragua | 139, Cannon-street. |
| Julia Taltal .....N | ¾ ⅝ | ¾ ⅝ | 1 0 | 8¾ % '91 | 1 0 0 | 200,000 | Chili ..... | 79½, Gracechurch-st. |
| Lagunas .....N | 4½ 5 | 4¾ 5¼ | 5 0 | 15 p.c. Dec. '94 | 5 0 0 | 120,000 | Tarapaca | 3, Gracechurch st. |
| Lautaro .....N | 6 6¾ | 6¾ 7¼ | 5 0 | 7/6 June 95 | 5 0 0 | 110,000 | Chili ..... | 70, Gracechurch st. |
| Liverpool .....N | 10½ 11¼ | 10½ 11¼ | 5 | 15/- May, 95 | 5 0 0 | 22,000 | Chili ..... | Liverpool. |
| Loma .....G | 1/3 1/9 | 1/3 1/6 | 1 0 | — | 1 0 0 | 300,000 | Colombia | 5, Copthall-building. |
| London Nit.....N | 1½ 2 | 1½ 2 | 3 0 | 3/4½ Nov. '89 | 3 0 0 | 10,000 | Chili ..... | 9, Gracechurch-st |
| London Nit.(Pref.) | 3¼ 4 | 3½ 4 | 5 0 | 8% Nov. '94 | 5 0 0 | 22,000 | Chili ..... | 9, Gracechurch-st |
| Mexico ..... | 1/9 2/3 | 1/9 2/3 | 0 2 | — | 0 2 0 | 200,000 | Peru ..... | 11, Old Broad-st, E.C |
| New Tamarugal .N | ¼ ⅜ | ¼ ⅜ | 1 10 | 1s. Dec. '94 | 1 10 0 | 130,000 | Tarapaca | 50, Lime-street, E.C |
| Do. 8% Cum Pref | ⅝ ¾ | ⅝ ¾ | 1 10 | 8 p.c. Feb. '95 | 1 10 0 | 130,000 | Tarapaca | 50, Lime-street, E.C |
| Do. 6 p.c. Debs ... | 91 94 | 90 93 | 100 0 | 6 p.c. Feb. '95 | £100 0 0 | £260,000 | Tarapaca | 50, Lime-street, E.C. |
| Orita .....G | 1/6 2/ | 1/6 2/- | 1 0 | 1/- April '89 | 1 0 0 | 30,000 | Colombia | 10, Blomfield-street. |
| Ouro Preto .....G | — — | — — | 1 0 | 1/- July '95 | 1 0 0 | 80,000 | Brazil .... | 6, Queen-street-place |
| Pac. & Jaspampa N | 2½ 3 | 3 3¼ | 5 0 | 4/- May, '95 | 5 0 0 | 72,000 | Tarapaca | 3, Gracechurch-st. |
| Primitiva .....A | 1¾ 1¾ | 1¾ 1¾ | 5 0 | 2½ Oct. '89 | 5 0 0 | 40,000 | Chili .... | Liverpool. |
| Quebrada .....C | ⅛ ¼ | 3/ 5/ | 3 0 | 5% Mar. '92 | 3 0 0 | 241,956 | Venezuela | 38, Nicholas Lane. |
| Quebrada .....C | — — | — — | 8 k. | 6% Feb., '94 | 100 0 0 | £400,000 | Venezuela | 38, Nicholas Lane. |
| Rosario .....N | 5 5½ | 5 5½ | 5 0 | 12/6 May '95 | 5 0 0 | 180,000 | Chili .. .. | 5744, Old Broad-street |
| Rosario (5% Deb. | 106 109 | 103 105 | 100 0 | 5% April '95 | 100 0 0 | £475,000 | Chili .... | 5744, Old Broad-street |
| Do. Huara Deb Scrp | 106 109 | 103 105 | 100 0 | 5% July, '95 | 100 0 0 | £200,000 | Chili .... | 5744, Old Broad-street |
| St. John del Rey G | 1¾ 1⅞ | 1¼ 1⅝ | 1 0 | 10/- June '82 | 1 0 0 | 323,190 | Brazil .... | Finsbury Ho., Bim'd-st. |
| San Donato .....N | 2 2½ | 2 2½ | 5 0 | 2/6 May, '95 | 5 0 0 | 32,000 | Chili .... | 12, King-st., Liverp |
| San Jorge .....N | 4¾ 5¼ | 5 5¼ | 5 0 | 12/6 May '95 | 5 0 0 | 75,000 | Chili .... | 9, Gracechurch-st. |
| San Pablo .....N | 1½ 2 | 1¾ 2¼ | 5 0 | 2½% Nov., '94 | 5 0 0 | 92,000 | Chili .... | Gracechurch-st |
| Santa Barbara .G | — — | — — | 0 10 | 1/3 Dec. '86 | 0 10 0 | 80,000 | Brazil .... | Liverpool |
| Santa Elena .....N | ⅜ ⅝ | ⅜ ⅝ | 5 0 | 5/- Oct. '94 | 5 0 0 | 22,000 | Tarapaca | 3, Gracechurch-st. |
| Santa Rita .....N | 2¼ 3¼ | 2¾ 3¼ | 5 10 | 10/- May, '95 | 5 0 0 | 20,000 | Chili .... | Dashwood House, E.C. |
| San Sebastian .....N | 1¾ 2¼ | 1¾ 2¼ | 5 0 | 5/ May, '95 | 5 0 0 | 29,000 | Chili .... | Dashwood House, E.C |
| Segov a .....G | — — | — — | 5/- | — | 5 0 0 | 120,000 | Colombia | 5, Copthal-building. |
| Sucre Pref.....G | — — | — — | 1 0 | 10% Dec. '94 | 0 15 0 | 840 | Colombia | 23, St. Swithin's ln. |
| Sucre Ord. .....G | — — | — — | 1 0 | 6% Dec. '94 | 1 0 0 | 10,000 | Colombia | 23, St. Swithin's ln. |
| Tolima "A" .....S | 7½ 8 | 6½ 7½ xd | 5 0 | 10/- July, '95 | 5 0 0 | 14,000 | Colombia | 18, Finsbury-circus. |
| Do. "B" .....S | 6¾ 6¾ | 6 6½ xd | 5 0 | 10/- July, '95 | 5 0 0 | 6,00 | Colombia | 18, Finsbury-circus. |
| Vic. & Altamira ... | 2/ 2/6 | 2/6 3/- | 0 5 | — | 0 5 0 | 200,000 | Venezuela | Broad-st. Avenue. |
| Do. Pref. ..... | 3/ 3/6 | 3/- 3/6 | — | — | — | — | — | — |
| West Indian.....G | — — | — — | 0 1 | — | 0 1 0 | 1,725,585 | Bingo. Dm | 110, Cannon-street. |

### AFRICAN MINES.

| Name. | Closing Price, July 19, 1895 | Closing Price, July 12, 1895. | Am't. of Share | Latest Dividend. | Called up Per Share. | Amount of Stock or No. of Shares Issued. | Situation of Mine. | Head Office. |
|---|---|---|---|---|---|---|---|---|
| | | | £ s. | | £ s. d. | | | |
| Abercorn Reef ..G | -/9 1/3 | 1/3 1/9 | 0 5 | — | 0 4 0 | — | Millwood | 16, Token'house Yard |
| Abbott's Con. Reefs | 1½ 1¾ | — | 1 0 | — | 1 0 0 | — | De Kaap | Broad Street Avenue. |
| African Alluvial ... | 1⅝ 1¾ | 1⅝ 1⅝ | 1 0 | — | 1 0 0 | 130,000 | Mozambiq | 11, Poultry. |
| African Alluvial ... | 1 / 12/ | 11/ 12/ | 1 0 | — | 0 3 6 | 20,000 | Mozamb q | 11, Poultry. |
| African Coal ..... | 6/10½ 7/1½ | 6/6 7/- | 1 0 | — | 0 16 6 | 300,000 | Middleburg | 19, St. Swithin's-lane |
| African Gold Con. | 2/3 2/9 | 2/3 2/9 | 0 10 | 20 p.c. Jan. '95 | 0 8 0 | 300,000 | Mossel By | 16, Tokenhouse-yard |
| African Gold Reefs, | 1⅜ 1⅝ | 1⅜ 1⅝ | 1 0 | 2/- Oct. '94 | 1 0 0 | 175,000 | — | 23, College Hill, |
| Afrikander ..... | 2¼ 2⅝ | 2¼ 2⅝ | 1 0 | — | 1 0 0 | 40,000 | Transvaal. | 19, St. Swithin's-lane |
| Agnes Block..... G | ⅞ 1 | ⅞ 1 | 1 0 | — | 1 0 0 | 78,507 | Transvaal. | 54, Old Broad-street |
| Alexandra Estate G | 13/ 14/- | 14/6 15/6 | 1 0 | — | 1 0 0 | 225,000 | Rand .... | Warnford Court, EC. |
| Anglo-French Exp. | 4½ 4¾ | 4⅝ 4⅞ | 5 0 | 12½% May 95 | 5 0 0 | 30,000 | S. Africa | 17, Winchester Ho. |
| Do. Matabeleland | 4 4⅛ | 4 4⅜ | 1 0 | — | 1 0 0 | 39,750 | Matabld. | Winchester House. |
| Apsantoo ..... G | — — | — — | 1 0 | — | 1 0 0 | 77,185 | West Coast | Dashwood House. |
| Aurora ..... G | 1⅞ 1⅞ | 1⅞ 1⅞ | 1 0 | 5% Mar, '93 | 1 0 0 | 85,000 | Rand ..... | 8, Old Jewry ? |
| Do West United. | 2⅜ 3 | 2⅜ 2¾ | 1 0 | — | 1 0 0 | 100,000 | Rand ..... | 1, Crosby Square. |
| Balkis Berstelling G | 6/ 6/6 | 8/- 8/3 | 0 10 | — | 0 10 0 | 520,000 | Transvaal | 85, Gracechurch-st. |
| Balkis Land ..... | 8/9 9/3 | 10/- 10/6 | 0 10 | — | 0 10 0 | 520,000 | Transvaal | 85, Gracechurch-st. |
| Barnet.....G | 9/ 10/ | 10/ 11/ | 1 0 | — | 1 0 0 | 200,000 | Rand ..... | Johannesburg. |
| Bantjes Reef .....G | 4¼ 5 | 4⅜ 4¾ | 1 0 | — | 1 0 0 | 83,000 | Rand ..... | Warnford-court, |
| Barrett.....G | 20/ 21/ | 26/ 26/6 | 0 10 | — | 1 0 0 | 207,495 | De Kaap | 17, Basinghall-street |
| Bechuanaland Exp. | 2⅛ 2⅜ xd | 2¾ 2⅞ xd | 1 0 | 3/- July 95 | 1 0 0 | 200.00 | Bechuana | 10, St. Swithin's-lane. |
| Bech. Trad g Assoc. | 1⅞ 1⅞ | 1⅞ 1⅞ | 1 0 | 10 p c May, 95 | 1 0 0 | 100,000 | Bechuana. | 19, St. Swithin's-lane. |
| Big Golden Quarry | 2/9 3/3 | 3/ 3/6 | 5/- | — | 0 5 0 | 483,226 | Kaap River | 4, Bishopsgte, st. Wn. |
| Block "B" Lang. | 29/6 30/6 | 30/- 31/- | 1 0 | — | 1 0 0 | 535,000 | Rand ... | 5, Prince's-st., E.C. |
| Boovsen Land ..G | 3¾ 3⅜ | 3¾ 3⅜ | 1 0 | — | 0 12 0 | 95,000 | Transvaal. | 4, Token'house-yard |
| Brit. S. A. Char. .. | 4⅛ 5⅛ | 4⅞ 5 | 1 0 | — | 1 0 0 | 2,000,000 | S. Africa | 19, St. Swithin's-lane |
| Bilfieldcorn ..... G | ⅛ ⅜ | 7⅛ ⅛ | 1 0 | — | 1 0 0 | 250,000 | Potchefstr | 7, Lothbury. |
| Buluwayo Syndi. ... | 2¾ 2⅞ | 1¾ 2 | 1 10 | — | 1 0 0 | 12,000 | Matabld. | 10, Helen's Place. |
| Cape Asbestos ..... | 2¾ 2¾ | 2¾ 2¾ | 1 0 | — | 1 0 0 | 50,311 | Orange Rv | 13, St. Swithin's-lane |
| Cape Copper .....C | 2 2¼ | 1⅞ 2⅛ | 2 0 | 1/3 June, '95 | 2 0 0 | 300,000 | Cape Col. | 9, Queen-street-place. |
| Do. 5% Pref. ... | 2 2¼ | 1⅞ 2⅛ | 2 0 | 1/3 June, '95 | 2 0 0 | 45,000 | Cape Col. | 9, Queen-street-place. |
| Cassel Colliery .... | 6¾ 6¾ | 5¾ 6 | 1 0 | 10 pc July '95 | 1 0 0 | 75,000 | Johanbrg. | 99, Cannon-street. |
| Chm. Montrose... G | 3/- 4/- | 3/- 4/ | 1 0 | — | 0 18 6 | 69,000 | Transvaal. | 15, George st. Mn. Ho. |
| Champ d'Or ..... G | ¼ ⅜ | ¼ ⅜ | 1 0 | 4/-/Jan. '95 | 1 0 0 | 118,016 | Rand ..... | 8, Old Jewry, E.C. |
| Champ d'Or Deep G | 3 3¼ | 3 3¼ | 1 0 | — | 1 0 0 | 117,499 | Rand ..... | 8, Old Jewry E.C. |
| City and Suburb. G | 26¾ 27 xd | 26¾ 27 | 1 0 | 10/- June '95 | 1 0 0 | 75,000 | Rand ..... | 98, Gresham Ho., E.C |
| Coetsestroom ...G | 11/9 12/3 | 11/6 12/6 | 0 15 | — | 0 15 0 | 140,000 | De Kaap | 105, Leadenhall-street |
| Con. Buffontein .G | 28/6 29/xd | 28/6 29/- | 1 0 | 5½% Sept. '94 | 1 0 0 | 721,500 | Griqualnd | 82, Lombard-st |
| Con. Deep Levels G | 5¾ 5⅞ xd | 5¾ 5⅞ xd | 1 0 | 20% June '95 | 1 0 0 | 187,250 | Transvaal | 30, St. Swithin's-lane |
| Con. G. Fields S A. | 12¾ 12⅞ | 12⅝ 12¾ | 1 0 | 5% May '95 | 1 0 0 | 1,200,000 | S. Africa | 8, Old Jewry. |
| Do. 6% Pref. ..... | 1¼ 1¾ | 1¼ 1¾ | 5 10 | 7 1-10 June '95 | 11 0 0 | 1,243,999 | S. Africa | 8, Old Jewry. |
| Do. 5½% Deben | 110¼ 111½ | 110¾ 111½ | 1 0 | 5½ Jan. '95 | 6 0 0 | 610,000 | S. Africa | 8, Old Jewry. |
| Crown Reef .. ...G | 10¾ 10¾ xd | 10¾ 10¾ xd | 1 0 | 25% June '95 | 1 0 0 | 120,000 | Rand ..... | 120, Bishopsgt st Wn |
| De Beers Consol. D | 22¾ 22⅞ | 22¾ 23¼ xd | 5 10 | 12/6 July '95 | 5 10 0 | 789,731 | Transvaal. | 83, Lombard-street. |
| Do. 5% 1st Deb.... | 106 109 | 108 109 | — | 9% July, '95 | — | £3,500000 | Transvaal. | 83, Lombard-street. |
| Do. 5% Bnd. Ob. | 105 107 | 104¾ 105¾ | — | 5% 2 Apr. 95 | — | 720,000 | Transvaal. | 62, Lombard-street. |
| Durban Roodept. G | 8½ 8¾ xd | 8½ 8⅝ | 1 0 | 3/- July, '95 | 1 0 0 | £125,000 | Rand ..... | 28, Leadenhall-bldgs |
| Do Deep..... | 5 5¼ | 5 5¼ | — | — | — | — | — | — |
| Eastleigh .....G | 2⅝ 2¾ | 2½ 2¾ | 1 0 | — | 1 0 0 | 240,000 | Klerksdrp | Winchester House, |
| East Rand.....G | 6⅛ 6⅜ | 6¾ 6¾ | 1 0 | — | 1 0 0 | 570,000 | Rand ..... | 170, Winchester-ho. |
| Evelyn .....G | 1 1¼ | 1 1⅛ | 1 0 | 10% Jan. '93 | 1 0 0 | 66,000 | Rand ..... | 98, Old Jewry, E.C |
| Exploration ..... | 2½ 2⅝ | 2½ 2⅝ | 1 0 | 1/- Dec. '94 | 0 4 6 | 144,000 | S. Africa | 30, St. Swithin's-ln. |
| Exploring Co. ..... | 6¾ 6¾ | 6¾ 6¾ | 1 0 | 25/- Feb. '94 | 1 0 0 | 69,950 | S. Africa | 19, S. Swithin's-ln. |
| Ferreira .....G | 17¼ 17¾ | 17¼ 17¼ | 1 0 | 60% June '95 | 1 0 0 | 45,000 | Rand ..... | 120, Bishopsgt st, Wn |
| Forbes Reef (New)G | ⅝ ¾ | ⅝ ⅝ | — | — | 1 0 0 | 600,000 | De Kaap | 45-6, Leadenhall-st. |
| Geldenhuis Deep G | 9¾ 9¾ | 9¼ 9¾ | 1 0 | — | 1 0 0 | 765,000 | Transvaal. | 35, St. Swithin's-lane. |
| Geldenhuis Est. G | 8¾ 7 | 8½ 7¼ | 1 0 | 30% July '95 | 1 0 0 | 187,500 | Rand ..... | 120, Bishopsgt st, Wn |
| Do. Main Reef | 1¾ 1¾ | 1 1⅛ | 1 0 | 5% July, '95 | 1 0 0 | 150,000 | Rand ..... | Warnford Court, E.C |
| George and May G | 2½ 2¾ | 2½ 2⅝ | 1 0 | — | 1 0 0 | 112,750 | Rand ..... | 7, Great St. Helen's, |
| George Goch ...G | 3⅜ 3¼ | 3½ 3⅝ | 1 0 | — | 1 0 0 | 100,000 | Rand ..... | Johannesburg |
| Ginsberg ..... | 2 2¼ | 2 2¼ | 1 0 | — | 1 0 0 | 130,000 | Drietfon. | Warnford Court, E.C. |
| Glencairn ..... | 4¼ 4½ | 4½ 4⅝ | 1 0 | 12 pc June '95 | 1 0 0 | 200,000 | Rand ..... | 2, Drapers-gardens. |
| Gold Coast Devel. | 6/ 6/6 | 5/9 6/3 | — | — | — | — | — | 11, Queen Victoria-st |
| Gold Estates T...G | ⅜ ¼ | ⅜ ⅜ | 1 0 | 15% Dec. '89 | 0 10 0 | 130,000 | Transvaal. | 46, Queen Victoria-s |
| Gld. Fe. Deep...G | 7¾ 7¼ | 7¾ 8 | 1 0 | — | 1 0 0 | 800,000 | S. Africa | 8, Old Jewry. |
| G. F. of Mashonld. | ⅝ ¾ | ⅝ ¾ | 1 0 | — | 1 0 0 | 200,000 | Mashonld | 19, St. Swithin's ln. |
| G. F. Tierra del Fuego | — — | 3/9 4/3 | 1 0 | — | 0 14 0 | 400,000 | Mozambiq | 2, Token house Bldgs |
| Grahamstown ..G | 17/- 18/- | 17/ 18/- | 1 0 | — | 1 0 0 | 150,000 | Rand ... | 14, Throgm rton-st |
| Graskop .....G | 8/- 9/- | 10/8 11/6 | 0 5 | 2½% Mar. '91 | 0 5 0 | 400,000 | Lydenburg | 85, Gracechurch-st. |
| Griqualand W ...G | 7¼ 8 xd | 7¼ 8 | 0 0 | 2½ Sept. '94 | — | — | Transvaal. | 82, Lombard-street |
| Guy Fawkes .....G | 11/6 12/6 | 11/6 12/6 | 0 10 | — | 10 0 0 | — | — | — |
| Gwelo Explorats. | 7/- 7/6 | 5/6 6/6 | 10 10 | — | 0 8 0 | 24,000 | Manica..... | Broad-st. Avenue |
| Harmony (Pref) G | 8/- 9/- | 6/6 7/6 | 1 0 | — | 1 0 0 | 280,000 | — | 79½, Gracechurch-st. |
| Henderson's Trans | 4¾ 4⅝ | 4¾ 4⅞ | 1 0 | — | 1 0 0 | 250,000 | Zoutpat.bg | 85, Gracechurch st. |
| Henry Nourse ...G | 6¾ 7 | 7⅛ 7⅜ | 1 0 | — | 1 0 0 | 100,000 | De Kaap.. | Warnford-court. |

### AFRICAN MINES—(*Continued*).

| Name. | Closing Price, July 19, 1895 | Closing Price, July 12, 1895. | Am't. of Share | Latest Dividend. | Called up Per Share. | Amount of Stock or No. of Shares Issued. | Situation of Mine. | Head Office. |
|---|---|---|---|---|---|---|---|---|
| | | | £ s. | | £ s. d. | | | |
| Joe's Reef .....G | ⅛ ⅜ | ⅛ ⅜ | 1 0 | — | 1 0 0 | 57,404 | De Kaap ... | 21, Mincing Lane. |
| Johannesburg G.F | 6/ 7/ | 6/ 7/ | 1 0 | — | 1 0 0 | 99,537 | Johanburg | 31, Lombard st., E.C. |
| Johannes. Invest. | 4⅛ 4⅜ | 4⅛ 4⅜ | 1 0 | 20 p c July, '95 | 1 0 0 | 650,000 | — | 7, Lothbury. |
| Johannesburg Par | 5⅜ 6 | 5¼ 5 | 1 0 | 12½ % Nov., '93 | 1 0 0 | 21,000 | Rand ..... | Johannesburg. |
| Jubilee .....G | 11¾ 12 | 11¾ 12 | 1 0 | 30% July '95 | 1 0 0 | 30,000 | Rand ..... | 8, Old Jewry ? |
| Jumpers .....G | 8¾ 8¾ | 7¾ 7¾ | 1 0 | 25% July '95 | 1 0 0 | 100,000 | Rand ..... | 120, Bishopsgt st, Wn. |
| Kimberley .....D | ⅜ ⅝ pm | 11⅛ 11⅛ | 1 0 | — | 0 10 0 | 98,672 | Kimberley | 19, Finsbury-circus. |
| Kimberley Rdpt.... | 3⅞ 4 | 4 4⅛ | 1 0 | — | 1 0 0 | 125,000 | Kimberley | 2, Drapers-gardens. |
| Klerksdorp ..... | /26/ /27/ | 23/6 24/6 | 0 10 | — | 9 18 0 | 400,000 | — | 110, Cannon St. |
| Koffyfontein .....D | 1⅛ 1⅛ | 1⅛ 1⅛ | 1 0 | — | 1 0 0 | 125,000 | Jacobsdal | 120, Bishopsgt st. Wn |
| Langlaagte Est. G | 6½ 6¾ xd | 6⅛ 6⅛ | 1 0 | 25 p.c. June '95 | 1 0 0 | 470,000 | Rand ..... | 59, Holborn Viaduct |
| Do. Royal | 3⅛ 3⅝ | 3⅛ 3⅛ | 1 0 | 5% Sept. '93 | 1 0 0 | 100,000 | Rand ..... | 2, Drapers-gardens. |
| Lionsdale ..... | 11/ 12/ | 12/6 13/6 | 1 0 | — | 1 0 0 | 115,000 | Lydenburg | 85, Gracechurch-st. |
| Lisbon-Berlyn .. G | 8/6 8/9 | 8/9 9/3 | 2/6 | — | 0 2 6 | 881,233 | Lydenburg | 110, Cannon-street |
| London & S. A. Ex. | 13 13½ | 12¾ 13¾ | 0 10 | 3/- Mar. '95 | 0 10 0 | 100,000 | S. Africa ... | 19, Finsbury-circus. |
| Lower Roodepoort | 7/8 8/- | 7/6 8/- | 1 0 | — | 1 0 0 | 150,000 | Viakfontn | 8, Old Jewry, E.C. |
| Lulpaards Viel Rst. | 34/6 35/6 | 28/6 29/6 | 1 0 | 8% Mar, '90 | 1 0 0 | 319,003 | Rand ..... | Warnford-court. |
| Main Reef (New) G | 1⅜ ⅛ | 1⅜ ⅛ | 1 0 | — | 0 10 0 | 300,000 | Rand ..... | 8, Old Jewry. |
| Mashon Agency... | 3½ 3⅝ | 3½ 3⅝ | 1 0 | — | 1 0 0 | 100,000 | Mashonald | 8, Old Jewry, E.C. |
| Massi Kessi ..... | 9/6 10/6 | 8/ 9/ | 0 10 | — | 1 0 0 | 60,000 | Manica .... | Broad Street Avenue |
| May Con. (New) G | 3¾ 4 | 3⅝ 4⅛ | 1 0 | 10 p c Apr. '95 | 1 0 0 | 400,000 | Rand ..... | 4, Lothbury. |
| Metropolitan (N) G | 2⅝ 2⅞ | 2½ 2⅝ | 1 0 | — | 1 0 0 | 75,020 | Rand ..... | 1, Crosby Square. |
| Meyer & Charl....G | 7⅞ 7⅞ xd | 7½ 7⅝ | 1 0 | 25% June, '95 | 1 0 0 | 71,687 | Rand ..... | 120, Bishopsgt st. Wn |
| Modderfontein .. G | 15⅝ 15¾ | 15¼ 15⅝ | 1 0 | — | 1 0 0 | 200,000 | Rand ..... | Warnford-court. |
| Montrose..... G | 1⅞ 1⅞ | 1⅝ 1⅝ | 1 0 | 3/- Feb. '90 | 1 0 0 | 70,000 | De Kaap ... | 65, New Broad-street |
| Moodies G. & E...G | 1⅝ 1⅝ xd | 1¾ 1⅞ | 1 0 | -/4 May '90 | 1 0 0 | 240,000 | De Kaap .. | 8, Old Jewry. |
| Mozambique..... | 33/ 34/ | 35/6 36/6 | 1 0 | — | 1 0 0 | 400,000 | S.E. Africa | Broad-street House. |
| Namaqua .....C | 1¾ 1⅝ | ⅞ 1¼ | 2 0 | 2/6 July '91 | 2 0 0 | 94,351 | Namaquald | 34, Leadenhall-bldg. |
| New African ..... | 7⅛ 7½ | 7¼ 7½ | 1 0 | — | 1 0 0 | 190,000 | — | 82, Hatton Garden. |
| New Ariston..... | 1¼ 1⅝ | 1¼ 1⅝ | 1 0 | — | 1 0 0 | 22,180 | Klerksdorp | Winchester House. |
| N. Belgium Land... | 6/- 7/- | 6/ 7/ | 1 0 | — | 0 17 6 | 167,462 | Waterberg. | 33, Cornhill. |
| New Chimes..... G | 3½ 3⅝ xd | 3½ 3¾ | 1 0 | 15 pc July '95 | 1 0 0 | 100,000 | Rand ..... | 8, Old Jewry, E.C |
| New Clewer Estate | 3 3¼ | 3 3⅜ | 1 0 | 10% Feb. '95 | 1 0 0 | 100,000 | Lydenburg | 120, Bishopsgt st. Wn |
| New Croesus..... G | 3 3½ | 3½ 3¾ | 1 0 | 5% Aug. '92 | 1 0 0 | 255,000 | Langlaagte | 120, Bishopsgt st. Wn |
| New Gordon..... D | 8/6 9/6 | 8/6 9/6 | 1 0 | 5% Dec. '89 | 1 0 0 | 404,344 | Griqualand | 110, Cannon-street. |
| New Heriot .....G | 11¾ 11¾ xd | 11⅝ 11¾ xd | 1 0 | 30 pc July '95 | 1 0 0 | 88,750 | Rand ..... | 98, Gresham Ho. EC |
| New Jagersf. ...D | 8⅞ 9⅛ | 9¾ 9⅞ | 5 0 | 10% Mar., '95 | 5 0 0 | 100,000 | Transvaal. | 5, Copthall-buildings |
| N. Kleinfontein G | 5⅞ 6 | 5⅞ 6 | 1 0 | 12½ pc Mar, '95 | 1 0 0 | 82,500 | Rand ..... | Winchester House |
| New Louis D'Or.. G | 3/- 3/5 | 3/ 3/5 | 1 0 | — | 1 0 0 | — | Rand ..... | 53, New Broad-street |
| New Primrose ...G | 7⅛ 7⅛ | 7⅛ 7⅛ | 1 0 | 15 pc. June '95 | 1 0 0 | 278,750 | Rand ..... | 2, Draper's-gardens. |
| New Rand..... | ⅛ ¼ pm | ⅛ ¼ pm | 1 0 | — | 1 0 0 | 110,000 | Rand ..... | Bartholomew-house |
| New Rietfontein G | 5⅜ 5¾ | 4⅝ 4⅞ | 1 0 | — | 1 0 0 | 160,000 | Rand ..... | Warnford-ct., E.C. |
| New S. Augustine D | 11/- 12/- | 11/- 13/- | 1 0 | — | 0 19 6 | 239,137 | Griqu'd W | 30-1, St. Swithin's-ln |
| New Spes Bona...G | 2⅛ 3⅛ | 3⅛ 3⅛ | 1 0 | — | 1 0 0 | 113,701 | Rand ..... | 24, N. John-st., L'pl. |
| New Steyn Estate | 4⅛ 2⅛ | 2⅛ 2⅛ | 1 0 | — | 1 0 0 | 125,000 | Heidelberg | 19, Bury Street, E.C |
| New Virginia ...G | 2/ 3/ | /9 1/3 | 0 10 | — | 0 10 0 | 48,335 | Transvaal | 26, Budge-row, E.C. |
| Nigel ..... G | 7⅛ 7¾ xd | 7¾ 8 | 1 0 | 10% June '95 | 1 0 0 | 160,000 | Rand ..... | 98, Gresham Ho. EC |
| Nigel Deep .....G | 3⅛ 3⅜ | 3⅜ 3⅜ | 1 0 | — | 1 0 0 | 195,000 | Heidelberg | 8, Old Jewry. |
| Nigel Extension ... | 9/3 9/9 | 10/6 11/ | 10/- | 10% June '95 | 0 10 0 | 160,000 | Rand ..... | Basing House, E.C. |
| North Sheba ..... | 5/- 5/6 | 4/6 5/6 | — | — | — | — | — | 88, London Wall. |
| Nourse Deep..... | 7⅛ 7⅜ | 7⅛ 7¾ | 1 0 | — | 1 0 0 | 375,000 | Rand ..... | 120, Bishopgt. st. Wn. |
| Oceana ..... | 3¾ 3¼ | 3⅛ 3⅛ | 1 0 | 25/- Nov. '89 | 1 0 0 | 326,000 | Transvaal . | 4, Sun Court, E.C |
| Oceana Developmnt | 1¼ 1⅜ | 1⅜ 1⅝ | 1 0 | — | 1 0 0 | 50,000 | Transvaal . | 4, Sun Court, E.C |
| Ophir Concess. ... | 3/8 4/8 | 3/8 4/6 | — | — | 0 18 6 | 111,857 | E. C. Africa | 31, Lombard-street. |
| Orange F.S.E. ...D | 4¾ 5¼ | 4¼ 5¼ | 1 0 | 10% July, 93 | 1 0 0 | 284,000 | Orange F.S. | 10, Moorgate-street. |
| Orion..... G | 4⅛ 4⅜ | 4½ 4¾ | 1 0 | 10% Mar. '95 | 1 0 0 | 30,000 | Rand ..... | 8, Old Jewry. |
| Otto's Kopje.....D | 6/- 6/6 | 5/ 5/6 | 1 0 | — | 1 0 0 | 437,888 | Kimberley | 110, Cannon-st., E.C |
| Paarl Central ... G | 1⅝ 1⅝ | 1½ 1⅝ | 1 0 | — | 1 0 0 | 138,750 | Transvaal . | 120, Bishopsgt st. Wn. |
| Pardy's Mozambq. | 2¾ 3 xall | 2¾ 3 xall | 0 10 | 1/- Jan. '95 | 0 10 0 | 13,000 | S.E. Africa | Broad St. Avenue. |
| Pardy's Range .... | 10/- 11/6 | 11/- 11/6 | 0 10 | — | 0 10 0 | — | Manica..... | Broad St. Avenue. |
| Piggs Peak ..... G | 15/6 15/6 | 13/6 15/6 | 1 0 | — | 0 17 6 | 200,000 | Swaziland . | 6, Queen-street-place |
| Piggs Peak ..... G | 18/9 21/3 | 18/9 21/3 | 1 0 | — | 1 0 0 | 60,652 | Swaziland . | 6, Queen-street-place |
| Pleiades..... | 1⅞ 1⅝ | 1⅛ 1⅝ | 1 0 | — | 1 0 0 | 140,000 | Black Reef | — |
| Potchefstroom... G | 1⅝ 2 | 2 2½ | 1 0 | — | 1 0 0 | 399,750 | Potchefstrm | 19, Bury-st., E.C. |
| President Land ... | 7/- 8/- | 7/- 8/- | 1 0 | — | 1 0 0 | 193,325 | Transvaal . | 17, Basinghall Street |
| Princess Estate G | 3½ 3½ | 3⅜ 3½ | 1 0 | — | 1 0 0 | 425,000 | Rand ..... | 33, Cornhill, E.C. |
| Rand Central Ore | 2¼ 2⅛ | — — | 1 0 | 25 p c 94 | 1 0 0 | 116,000 | — | 15, Geo. St., Mn. Ho. |
| Randfontein .....G | 2⅛ 3⅛ | 2⅞ 3 | 1 0 | — | 1 0 0 | 2,000,000 | Rand ..... | 59, Holborn Viaduct. |
| Rand Mines ..... G | 33¾ 34¼ | 34¼ 35¼ | 1 0 | — | 1 0 0 | 332,726 | Rand ..... | 120, Bishopsgt st. Wn |
| Rand-Rhodesia ... | 2⅛ 2⅛ | 2 2⅛ 2⅛ | 1 0 | 10 p.c. July '95 | 1 0 0 | 25,000 | R&Rhodesia | 123, Bishopsgt-st Wn |
| Read's Drift ..... D | 2 2⅛ | 1⅜ 1⅝ | 1 0 | — | 1 0 0 | 37,000 | Transvaal . | 19, Finsbury circus. |
| Rhodesia Expln | 11¾ 12 | 10 10½ | 1 0 | — | 1 0 0 | 53,010 | M. & Mash'. | 8, Old Jewry. |
| Robinson .....D | 2¾ 2⅞ | — — | 1 0 | — | 1 0 0 | 330,007 | Kaal Valley | 5, Prince's-street. |
| Robinson .....G | 9⅜ 9¾ | 9½ 9⅝ | 5 0 | 8 p c July '95 | 5 0 0 | 550,000 | M. Rf. rand | 98, Austin Friars, E.C |
| Robinson Randfin. | 1½ 1⅝ | — — | 1 0 | — | 1 0 0 | 817,900 | Rand ..... | 5, Prince's-street. |
| Roodepoort Deep | 4⅛ 4⅜ | 4½ 4⅝ | 1 0 | — | 1 0 0 | 170,000 | Rand ..... | 8, Old Jewry, E.C. |
| Roodepoort (Klm.) | 3⅞ 4 | 4 4½ | 1 0 | — | 1 0 0 | 100,000 | Rand ..... | 7, Lothbury, E.C. |
| Roodepoort Un. G | 6½ 6⅝ | 6⅝ 6⅝ | 1 0 | 25% June, '95 | 1 0 0 | 130,000 | Rand ..... | Warnford-court. |
| Ross Deep ..... G | 6 6¼ | 6¼ 6⅜ | 1 0 | — | 1 0 0 | 300,000 | M. Rf. rand | 30-3, S. Swith'n's. lane. |
| Rosenblock Tw'Rfs | ⅞ 1 | ⅞ 1 | 1 0 | — | 1 0 0 | 60,000 | Krugersdp | 4, Tokenhouse bldgs. |
| Rothery Block..... | 23/- 25/- | 21/- 23/- | — | — | — | — | — | — |
| Salisbury Gold ... | 5¾ 5¾ | 5¼ 5¾ | 1 0 | — | 1 0 0 | 93,000 | Rand ..... | 98, Gresham Ho., EC |
| Sheba ..... G | 2⅛ 2⅛ | 2⅜ 2½ | 1 0 | 1/- Sept. '94 | 1 0 0 | 850,000 | Lydenburg | 18, S. Helen's place. |
| Sliati ..... G | ⅞ ⅝ | ⅞ ⅝ | 1 0 | — | 0 18 6 | 119,000 | Zoutpan'bg | 4, Sun Court, E.C. |
| Simmer & Jack...G | 17 17¼ | 16¾ 17¼ | 1 0 | 10% June '95 | 1 0 0 | 250,000 | Rand ..... | 8, Old Jewry. |
| S. A. Gold Trust ... | 9 9¼ | 9¼ 9½ | 1 0 | 50% June '95 | 1 0 0 | 250,000 | S. Africa ... | 8, Old Jewry. |
| Southern Geldnus. | 5/8 6/3 | 5/9 6/3 | 1 0 | — | 1 0 0 | 120,000 | Ela-defont | 5, Great St. Helen's |
| Southern Land..... | 15/ 15/- | 15/- 16/- | — | — | 0 15 0 | 60,000 | Gigid, W. & B. Beoh | 19, St. Swithin's-ln. |
| South West Rand | 1¼ 1⅝ | 1⅞ 2 | 1 0 | — | 1 0 0 | 158,000 | Rand ..... | Winchester House. |
| Spitzkop (New) G |

# SIDE LIGHTS ON THE LAW:

**Legal Jottings on Cases in the Courts, and on Questions affecting Mining, Railway, Financial, Industrial, and allied Interests.**

BY A BARRISTER.

THE value of the periodical audit of accounts of a firm or company is not always fully appreciated, and for this reason the responsibility of the auditor is not fully recognised. Last week I pointed out the difference between acts of misfeasance and of nonfeasance. If an auditor, who has been appointed by a Limited company, has been guilty of the former, whereby loss or damage has been suffered by the company, the auditor may now, in case the company is wound-up, be ordered by a summary process to pay compensation to the company. But it is a mistake to suppose that the Winding-Up Act of 1890, in giving this summary power of calling auditors to account, is declaring any new law, or imposing on auditors any new liability. An auditor for reward accepts a position of trust, and is not only responsible for any act of misfeasance, but for any act of negligent omission, the natural or immediate consequence of which is to cause loss or damage to his employers. It would seem from a recent case before the Court of Appeal that auditors appointed by Limited companies at their annual meeting are ordinarily so responsible, unless there be something in the Articles of Association of the particular company which relieves them from such a position. Lord Justice Lindley said, after section 7 of the Companies Act, 1879, "it seems impossible to deny that an auditor is an officer of the company. He is appointed by the company, he is paid by the company, and his position is described in the section as that of an officer of the company. He is not a servant of the directors. On the contrary, he is appointed by the company to check the directors." What is to be the nature of this check may be gathered from the view expressed by Mr. Justice Stirling in the Leeds Estate Building and Investment Company case as to the duty of an auditor. "It is not," said his Lordship, "to confine himself merely to the task of verifying the arithmetical accuracy of the balance-sheet, but to enquire into its substantial accuracy, and to ascertain that it contains the particulars specified in the Articles of Association of the company (and consequently a proper income and expenditure account), and is properly drawn up, so as to contain a true and correct representation of the state of the company's affairs."

THE danger to auditors who omit to carry out this serious duty is well exemplified by the result of the case before Mr. Justice Stirling, from the judgment in which I take the above extract. Relying on the auditors' balance-sheet, the directors, who were all men of business, and regularly attended the board meetings and the general meetings of the company, paid dividends, directors' fees, and bonuses which they ought not to have paid. Each of them were ignorant of the mode in which the balance-sheets were prepared, and of the inaccuracies contained in them, and trusted entirely to the secretary, manager, and auditor. For the amount of the moneys so improperly paid by the directors in an action brought against him by the company, the auditor was held liable in damages.

THE County of Gloucester Bank case reasserts a principle which in these days of dealings with Limited companies cannot be too well borne in mind. A person dealing with a company need only look to the Act of Parliament, and the Memorandum and Articles of Association. As these are public documents he is supposed to have notice of them. It is in this respect that a contract with a company differs from that with an ordinary partnership. The servant of the company can only bind the company in accordance with its constitution. The principle of the law that all things are presumed to have been rightly done applies equally to companies as to other partnerships. The public is not bound to make itself acquainted with the internal arrangements of the company. Therefore, if the Articles of Association leave it to the directors to fix their own quorum, the person dealing with the company is not concerned to know whether such a quorum has been fixed, nor whether his contract has been passed by the proper quorum so fixed. It, therefore, follows that if the contract is such as the constitution of the company admits, the company is bound, although its own private byelaws or regulations have not been complied with.

# CORRESPONDENCE.

*We wish it to be understood that we do not hold ourselves responsible for, and do not necessarily endorse, the opinions of correspondents. All communications must be accompanied by the names and addresses of the senders, though these need not necessarily be published.*

## THE GREAT DE KAAP (MOODIES) GOLD FIELD, LIMITED.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—Your issue of May 4 has just reached me here, and I notice in it an article on the above-named company, in which I am said to have "surveyed" and "reported" on the property. I beg to state that I never heard the name before this, and also that I have not been in the De Kaap district for nearly five years. The first paragraph which you quote is taken from a report on the Nottingham mining property, which I made in January, 1889; and the other I certainly never wrote at all, but appears to be a somewhat incorrect report of a speech of mine at a meeting of the Nottingham Company, held in London in 1891.—Yours, &c.,

*Salisbury, Mashonaland, June 12.* CHARLES J. ALFORD.

[The "article" in question appeared in our advertising columns.—Editor *M.J.*]

## THE SUTHERLAND GOLD DIGGINGS.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—It has been a subject of remark that the "rush" to the Sutherlandshire gold diggings only included some 12 men, and very little has been heard of the results obtained by them.

The following summary of conditions under which prospectors bind themselves, will, I think, explain why so few men are attracted to Kildonan:—The prospecting is to be carried on for three months and if the prospector does not continue working the whole of that time the gold won by him is forfeited. The gold is to be handed over weekly to the station-master at Kildonan, and is returned to the prospector at the end of the three months, less Crown claims and expenses of management. The claims, which can be located only on Suisgill farm, are 40 feet square, and must be levelled up and left free from holes by the workers.

Is this the way to encourage an industry which might possibly give fair returns?—I am, Sir, yours faithfully, A. W. D.

*July 12.*

## OGOFAU GOLD MINES, SOUTH WALES.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—I have been much interested in your recent articles on "Gold Mining in Wales," and particularly notice the letter under the above heading in your issue of May 4 by "Miner." With regard to Ogofau, having spent two years there in active mining work, I should like to express the opinion—if those at present working in the mine care to have it—that the best course of development that can be followed there is to sink and drive on the large reef near the entrance to what I presume is now called the long adit; but, when I was there, was called the lower level.—Yours truly, TELFORD EDWARDS, F.G.S.

*Tati, Matabeleland, June 8.*

## LADY HELEN GOLD MINING SYNDICATE, LIMITED.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—The circular addressed to the shareholders of the British South Africa Company by the secretary of the above Syndicate has been brought to our notice. The circular is so framed that it may lead the public to believe that the Syndicate has a close connection with the British South Africa Company. I am instructed to say that we know nothing whatever of the undertaking.—I am, Sir, your obedient servant,

HERBERT CANNING, Secretary,
British South Africa Company.

19, *St. Swithin's Lane, London. E.C., July 15.*

# REPORTS FROM THE MINES

## BRITISH MINES.

DEVON GREAT CONSOLS.—William Clemo, July 18: Watson's engine shaft. In the 172 fathom level east the lode is 4 feet wide, producing a little copper and mundic ores. In the 148 fathom level east the lode is 3 feet wide, yielding 2 tons of copper ore per fathom. The stopes throughout the mines continue to turn out large quantities of copper and mundic ores for treatment at the reduction works.

GREAT LAXEY.—F. Reddicliffe, July 17: The exceedingly dry weather, so long continued, is altogether unprecedented at Great Laxey, and, as a consequence, not only is the water not yet in fork at the bottom of Welsh shaft, but some 18 fathoms in depth has accumulated. The little rain occasionally during the last week has done but very little as yet in raising the streams, and the big wheel is still not turning fast enough to keep out the coming water. We have not thought it desirable to put on steam power for the purposes of air-compressing, but to await the next rain. We are still unable to speak of any improvement or change of consequence throughout the mine.

KILLIFRETH.—Scorrier, Cornwall, July 17: Middle lode. The 70 fathom level has been driven 6 fathoms west of the crosscut; lode worth for that distance £12 per fathom. We shall at once commence to rise in the back of this level. The lode in the 50 fathom level west is worth for tin and arsenic £6 per fathom. The rise just behind this end is worth £7 per fathom. The mid-end, driving on south part in back of 40, is worth £12 per fathom. The rise on this part is up 10 fathoms, and worth for the whole distance £10 per fathom. We have just met with the south part in the 30 fathom crosscut; lode as far as seen is worth £10 per fathom. We have decided to set all the ground above the 30 fathom level, east and west of skip shaft, on tribute, and shall be able to report further on this in a month's time. Richard's shaft, sinking below the 70 fathom level, is down 17 fathoms 2 feet, and we hope next month to be able to report the driving of the crosscuts north and south.—(Signed) R. A. James.

LEADHILLS.—W. H. Paull, July 15: Brown's vein. The vein in the 160 fathom level going north of Jeffrey's shaft continues much of the same character, showing a little lead ore at times, but not enough to value. In the same level south of Wilson's shaft, the vein is 4 feet wide, containing quartz 1 foot wide, but without ore. The winze sinking below the 135 fathom level, north of Jeffrey's shaft is going down at a fairish rate, vein 4 feet wide, containing less ore, producing at present 20 cwts. per fathom. The two stopes, Nos. 3 and 4 over the 145 fathom level north of Jeffrey's shaft, are worth respectively 20 cwts. and 25 cwts. of ore per fathom. The two stopes above the 115 fathom level north will produce on an average 30 cwts. of ore per fathom. In the 100 fathom level driving south of Wilson's shaft the vein is 4 feet wide, showing a mixture of kindly spar, but stone rather soft at present. In rise over the 100 fathom level south of Wilson's shaft the vein contains but little ore to-day. No. 2 winze sinking below the 85 fathom level south of Wilson's shaft is on vein 4 feet wide, chiefly stone and unproductive. The vein in stope above the 85 fathom level south of Wilson's shaft is yielding 60 cwts. of ore per fathom. In stope over the 70 fathom level south of Wilson's shaft the vein is 8 feet wide, worth 100 cwts. of ore per fathom. In stope above the 50 fathom level south of flat-rod shaft the vein is 3½ feet wide, yielding 25 cwts. of ore per fathom. The vein in stope below the 35 fathom level south of same shaft has fallen off in produce, and will now yield 20 cwts of ore per fathom.—Raik vein. The crosscut east at the 100 fathom level south of Wilson's shaft has been extended 11 feet during the past week, and I am pleased to say that for 5 feet of this drivage we passed through a fine strong vein, containing a good mixture of lead ore worth 3 tons per fathom. For the last 4 feet in driving here spots of ore only have been met with, and vein still in forebreast of crosscut. There is no change worthy of remark, elsewhere surface works are being pushed onward regularly.

WEARDALE.—Report on Weardale Company's mines for week ending July 13: Groverake. The crosscut north from Armstrong's old rise is about 4 feet into a very hard sparry vein with no ore and slow to drive. Tribute ore for the week returned at eight bings.—Boltsburn. Stopes in north and south flats, worth 40, 24, 28, 24, 28, 30, 24, and 20 cwts. per fathom. Stope in Watt's level worth 30 cwts. per fathom.—Greenlaws, Nattrass Gill drift. The rise in plate above 4 fathoms. Limestone shows no change. Lowe's drift stopes worth 16, 16, 18, and 10 cwts. per fathom. Quarry level, vein narrow, some ore, but not to value. Stope worth 8 cwts. per fathom. Tribute ore for the week returned at seven bings.—Sedling. The driving of the 64 east vein has been resumed. Vein improved, 4 feet of good floor spar and ore, worth 16 cwts. per fathom. Stopes above 64 level west worth 14 and 14 cwts. per fathom. Ore raised for week, 40 tons; ore dressed for week, 22 tons; ore, slag, and fume smelted 68 tons, producing 31 tons of pig lead.

## COLONIAL, INDIAN, AND FOREIGN MINES.

CRESCENS (MATABELE) MINES AND LAND.—The following report has been received from Mr. C. J. Robinson, dated Buluwayo, June 8.—To the directors of the Crescens (Matabele) Mines and Land Company (Limited), London. Gentlemen,—I arrived here on the 24th ult., and would have written you by last mail, but had to leave hurriedly for the country to inspect some mining work going on, and was, in consequence, away some days. Mr. Grenfell, I hear, has reached Tuli; he is travelling with cart and mules, and bringing with him an American miner named Sawyer, to inspect the various mining properties pegged off by the company. I find that during my absence our various interests have been well looked after and protected by our co-vendor, Mr. Bastard, and the survey of our land has been carried on as expeditiously as I could reasonably expect. The following blocks have been completed—viz.:—Hoka block of 10 farms, Imbezu block of four farms, Kodwayo block of three farms, Watershed block of two farms, Kanuck Farm (Watershed block of three farms, Surveyed two farms and one farm). The first-named (Hoka) is generally spoken of as some of the very finest agricultural ground in the whole country, and could hardly be better situated in the wealth of Matabeleland. The Imbezu is also a block of exceptional value, on account of its proximity to Buluwayo, and I may add is much envied. The beacons of the main belt block have all been handed over to the surveyor, and the survey will commence forthwith; the same applying to the Bubi block, also Isonomy farm. It is impossible to hurry things along in this land; much survey is going on and things must take their course, but I hope to get the whole completed in two or three months, and am using every effort to push things forward as quickly as possible. I have just purchased a very valuable farm upon the gold belt, with a considerable number of gold claims pegged off thereon, some of which are showing exceptional promise. It is situated about 45 miles east south east of Buluwayo. The beacons have all been handed over to the surveyor—we, of course, paying survey fees—so I think I may safely add our colossal interests in land look absolutely secure the whole way round, and that the company has much reason to congratulate itself upon this score. As the company allows the surveyors a 7 per cent. margin to work upon, our total holding should stand us in round about 420,000 acres, or about 650 square miles, and considering that this land is in a great part upon the gold belt and all located in the heart of the country, I think we should be unwise to dream or parting with any of it at present. It is about impossible to pick up any land worth having, nearly all the small men with desirable holdings having parted, and is has passed into the hands of stronger holders, and blocks upon the gold belt are simply unattainable at any price. Upon my arrival here I purchased two, what I consider, very cheap stands not far from where the new Post Office and Stock Exchange are in course of erection—a locality in which stands must become very valuable, and I think it may be wise at the coming sale, end of August, to largely increase our holding in town stands at anything like a reasonable figure, but I should advocate holding aloof if prices run at all wild, as I rather anticipate they will do, except for very exceptional positions. Several contracts for sinking shafts have been given out on the most promising of our mining claims, located upon the largest old workings. Upon the Vauxhall reef the old workings were bottomed at 45 feet, and a reef of about 3 feet wide struck, carry a lot of visible gold. I went out to see the property, and instructed them to continue sinking and following the reef to 60 feet, and see how she continues. I have great confidence in the Umsizwe district; the properties about us are numerous and turning out very rich. We are close to the Nellie Golden Crown and not far from the Pioneer reefs, upon all of which a lot of work is going on, with highly promising results. A 60 feet shaft is also being sunk in the old workings of the Ben Battle. I visit this district again immediately Mr. Sawyer arrives. Have also given out contracts for 100 feet of sinking on the Veracity reef, and a 60 feet shaft upon the Satisfy; each of these properties contain numerous old workings of considerable size. Shall shape to concentrate our work on one or two of the richest, and so prove them to a depth and over an area by means of several shafts. Shall hope to have some important news for you shortly. Have dispatched two parties of prospectors—one to the Granada district and the other to a freshly-discovered gold belt. Have also acquired a large number more of Pioneer gold claim rights, and hope during the next month or two to increase our holding of gold claims very considerably. The country has been little more than run over as yet.—(Signed) Cres, J. Robinson.

GREAT SOUTHERN TIN AND GOLD FIELDS.—The mining manager reports: Toora, Australia, June 8. I have to report that the same rate of progress has been made the last fortnight as the previous one; rock still the same, but more water in the face, and we are now using dynamite instead of powder, finding it answers very well with the good ventilation we now have. As stated in my last report, we have made a start at north end of tunnel. A race has been cut some five or six chains in length to carry off the storm water down the gully and to prevent its getting into the cutting; this race is now finished and the open cutting commenced, tip for tramway made, sleepers and supports for rails prepared. Distance driven in the fortnight, 24 feet. Total length from line of race, 411 feet.

LION (Mozambique).—Report from the superintendent engineer, Mr. Ninesa, for the month of April: Drive No. 1. Measurement for the month 30 feet, total length 365 feet. I am going to drive across or at right angles with the strata, as the reefs here invariably run with the strata. We may have been driving by the side of the main reef, but this I shall soon test.—Drive No. 2. Measurement for month 27 feet, total length 262 feet. The ground is harder. The width of the pay ore I cabled you about is feet. I am pushing on the drive to intersect the reef we commenced the drive for, which traverses claims Nos. 11, 3, and 14.

MAY CONSOLIDATED.—The directors submit the following report for the month of May: Battery, 80 stamps ran 27 days, crushed 9720 tons. Gold won 3350·34 ounces (average 6·893 dwts. per ton), valued at 72s. 6d. per ounce, £12,147 14s. 2d.—Cyanide works, McArthur-Forrest process, 5795 tons tailings treated, gold won 1584·98 ounces (average 5·470 dwts. per ton), valued at 60s. per ounce, £4754 18s. 9d.—Siemens process, 3360 tons tailings treated, gold won 712·24 ounces (average 4·239 dwt. per ton), at 60s. per ounce, £2136 14s. 5d., other receipts £67=£19,104 7s. 4d.—Working costs, Mining 9720 tons, cost £6476 5s. 3d., equals 13s. 3·908d. per ton; development, 9720 tons, cost £687 9s. 8d. equals 1s. 4·973d. per ton, total, £7163 15s. 4d. equals 14s. 8·881d. per ton. Tramming, 9720 tons, cost £306 13s. 10d., equals 7·572d. per ton; crushing and sorting, 9720 tons, cost £197 9s. 7d. equals 4·876d. per ton; milling, 9720 tons, cost £2148 12s. 8d. equals 4s. 5·053d. per ton, total £9816 11s. 5d. equals 20s. 2·382d. per ton.—Tailings treatment, McArthur-Forrest process, 5795 tons, cost £1509 5s. 11d. equals 5s. 2·507d. per ton; Siemens process, 3·360 tons, cost £614 9s. 7d. equals 3s. 7·89d. per ton, total, £11,940 6s. 11d; profit, £7164 0s. 5d.—Expenditure on capital account, Construction, &c., £4546 5s.—Excess development, £543 17s. 9d., £5090 2s. 9d.

PESTARENA.—The mid-monthly report is as follows:—Ends. The 46[illegible] end east on No. 1 lode is carrying 50 centimetres of lode, with occasional patches of pyrites. The end is still some distance behind the ore shoot. In the 55 east on No. 1 lode there is still a little ore in the roof, valued at 1 ton of 15 dwts. per fathom. The lode in the 90 west is now well defined and 2 metres wide, carrying a branch of 7 centimetres of almost solid pyrites, with small pipes mixed throughout the remaining part of the lode. Its present value is estimated at 2 tons of 1 ounce 5 dwts. per fathom.—Crosscuts. The 70 north has intersected a greenphitic head, and shows some pyrites in the mountain. The 90 Acquaviva north has become much harder and is still mixed with patches of quartz.—Stopes. These feebly maintain the value reported on 3rd inst.—Stabioli Mine. No special feature has presented itself since last reported.—Kint concession. The rock in the Goja adit has become somewhat more favourable for driving through. The Goja end east on branch has become poorer, although a little ore still remains in the roof. The lode, however, maintains its size and a change may occur at any moment for the better. The lode in the Kint end west is massive and well defined and mixed throughout with fine pyrites. Its appearance is most promising, but I do not think that the ore shoot can be reached for a distance less than 30 metres. The water has been forked in the Quarenzza adit, down to where work was suspended last year. The lode at this point has a dip 67°, or 12° more than that on which I base my calculations for its intersection in the Goja adit, which accounts for its not having yet been met with there.—Pozzone Mine. The water has now been forked to a depth of 40·5 metres, and since fine weather has set in, good progress has been made. There is nothing new to report on the machinery.—(Signed) W. Henwood Trelease, T. Henry Mess.

ANGLO-MEXICAN.—The manager, writing from San José de Gracia on June 6, reports as follows: New main tunnel. You will note that excellent progress has been made in this tunnel during the week under review, the work having advanced 36 feet, making a total to date of 1573 feet. Apart from the satisfactory progress noted, however, there is nothing of special interest to report regarding this work.—Face of Guadalupe tunnel. This tunnel was advanced 13 feet during the week under report, having now attained a total length of 2558 feet. I regret to say that the face of the tunnel still continues entirely barren, and does not show any improvement. It is my intention next week to start crosscuts from this tunnel into both the foot and hanging wall in order to make entirely certain that we have not, by some chance, missed the vein. I will keep you advised from week to week as to the result of the new works mentioned.—Upraise No. 11 No. 1 level. You will note that this upraise was advanced 8 feet during the past week, making a total height attained to date of 174 feet above the No. 1 level. The ore in the face of the upraise is about 3 feet in width, and assays about $35 per ton in gold.—Face of drift south No. 2 level. Work in this drift was pushed ahead 10 feet during the past week, making a total length to date of 61 feet. The ore in the face of the drift is about 3 feet in width, and is of high grade.—Face of drift north No. 11 upraise. You will note that this drift was advanced 8 feet during the week, making a total length to date of 75 feet. The vein in the face of the drift is of about the average width, and although the ledge is somewhat broken up at this point, it assays fairly well, giving about $45 per ton in gold.—San Nicolasito tunnel. Work in this tunnel was advanced 13 feet during the past week, making a total length run to date of 405 feet. The vein in the face of this tunnel looks about the same as for some time past, and shows ore of a low grade.—Winze No. 2 San Nicolasito tunnel. This winze was sunk 8 feet during the week under report, having now attained a total depth of 45 feet. The appearance in the vein in the bottom of winze has improved somewhat over last week, and now shows a pay streak about 2 feet in width, assaying $55 per ton in gold. The total width of the vein is about 4 feet.

AUSTRALIAN BROKEN HILL CONSOLS.—The mining manager reports by mail for the fortnight ending June 6, as follows:—Block 96. 280 level east prospecting drive No. 4 rise driven 13 feet, total 138 feet. Lode widening, else, no change.—East drive, south stopes. Lode formation small, consisting of two small veins of carbonate of iron, the lower one carrying a little galena and fahlerz.—P.S. On June 7 the above improved greatly, and raised some fahlerz and native silver. 280 level west prospecting drive driven 18 feet, total 187 feet 6 inches. The lode is small, carrying iron, and a little galena and grey ore has been met with.—Incline. No. 6 level east driven 5 feet 6 inches, total 18 feet. Lode is small but well defined, and the country extremely hard. No. 5 level east driven 12 feet, total 176 feet; no change. This level, having reached a sufficient distance east to enable us to put up a rise to meet the underhand stopes from No. 4 level, work was stopped for the present and a rise has been started. No. 4 level east no change.—Diamond drill. The diamond drill was started on June 5.—Note. The quantity of rock mined during the fortnight was 2646 cubic feet.

BALAGHAT MYSORE.—Jos. Pryor, June 25: Ogle's shaft. The 270 feet level south on the No. 1, or Coromandel lode, has been driven 21 feet, or 62 feet 9 inches from the east crosscut. During this drivage a considerable improvement has taken place in the general character of the lode, and I am pleased to say it now yields quartz of 1 foot wide and of an assay value of 6 dwts. 18 grains of gold per ton.—Tennant's shaft. The necessary ground for the tip-plat has been cut, and the men have again resumed the sinking of the shaft below the 600 feet level and have deepened it 2 feet, or 8 feet 6 inches below the level. The ground in the shaft is at present unproductive. In addition to the above we have also further advanced the 600 feet level north 10 feet 6 inches, or 21 feet from the shaft. This end is now suspended for a time that we may force the sinking of the shaft with greater speed. Nothing has been done in the 600 feet level south since the last report. The 500 feet level north has been advanced 17 feet 3 inches, or 200 feet 3 inches from the shaft. The first 7 feet of this drivage the lode yielded quartz varying from 6 inches to 1 foot wide, and of an assay value of over an ounce to the ton. We then (190 feet from shaft) intersected the east and west dyke, through which we are now driving. At about 185 feet from the shaft at the 420 feet level north we have recently commenced sinking a winze (on the western part of the lode). It is now down 4 feet below the level. The lode yields quartz of about 3 feet wide, and of an assay value of 4 dwts. per ton. The crosscut west at the 420 feet level north (on the eastern part of the lode) has been extended 14 feet 6 inches, or 25 feet 6 inches from the level. Nothing of value has as yet been met with.

BAYLEY'S REWARD CLAIM.—Mine report, dated Coolgardie, W. A., May 27: Sylvester shaft. Since my last the lode at the 380 feet level has been driven through exposing over 11 feet of solid stone, on the north side of the drive, and over 9 feet in the south side, giving an average width of fully 10 feet. Beyond this, for another 2 feet, there is a strong bar of highly mineralised intrusive rock, then the east, or hanging wall, which is clean and well-defined, total length of crosscut is 49 feet from chamber, being 7 feet driven since my last. As advised by telegraph this morning we have started to drive south. Some of the gold at first seen has been taken down, the face still looking well with good gold showing, but it is still too soon to say if it will continue to any great length or not. The only thing I can say at present is that it looks very well indeed—220 feet level. The timbering and squaring down the winze from the 220 feet level has been completed, and to-day will start an intermediate drive at the 255 —100 feet level. Stopes continue to yield stone of the average grade crushed, lode being from 3 to 6 feet wide.—Gordon shaft. South stope shows no particular change, a little gold being seen at times. Lode from 3 to 4 feet wide. North stope shows no change, lode being the same size as previously reported, from 4 to 5 feet wide.—No. 1 intermediate. Lode from 5 to 6 feet wide, fine gold at times being visible.—Air shaft. South stope not so good as previously, but still a little gold being seen breaking, width of reef 2 feet.—Everard shaft. From the south drive a winze is being sunk to connect with the north bottom drive in the air shaft, present depth 13 feet.—North of big blow. Slightly north of the big blow some surface prospecting has been done during the week, and a small ironstone leader or vein discovered exposing some very nice gold. The vein up to the present has not penetrated the solid country rock, neither does it appear to continue beyond a few feet in length, but work will be continued, and if possible its direction traced.—Stone treated. During the fortnight there has been crushed 334 tons taken from the stopes—Sylvester, Gordon, and the air shafts, about an equal quantity from each place.—Yield. Yield for the same time has been 295 ounces of gold.—(Signed) W. H. Matthews.

BRITISH BROKEN HILL PROPRIETARY.—Mining manager's report for the week ending June 5: Blackwood (No. 1) shaft. 240 feet level. North drive lengthened 11 feet, total length 48 feet. Face in country which carries patches of sulphide ore occasionally. This will be stopped in a day or two, when contract will be completed.—Howell (No. 2) shaft. 300 feet level. West crosscut from plat extended only 4 feet, total length 55 feet. This crosscut is in extremely hard low grade sulphides, heavily charged with garnets. South-west drive, off west crosscut from winze, was driven 8 feet, making total length 86 feet. West side of drive is in hard lode matter of no value, while east side shows a watercourse, which will be followed until connection is made with west crosscut from plat.—240 feet level. South-west drive down far north winze was advanced 13 feet, total 83 feet; and stopped as face now entirely in mullock. Work will now be started in east crosscut from winze, where a chamber is being excavated preparatory to sinking a winze in order to prove depth of sulphide ore body at this point.—Marsh (No. 6) shaft. 2nd level. A larger supply than usual of carbonate ore has been mined from lode around winze down west crosscut, which looks well at present. 35 tons carbonate ore, averaging 24 per cent. lead and 47 ounces silver per ton were mined, and 1 ton assaying 20 per cent. lead and 25 ounces silver. The tributers on 2nd level broke 14½ tons carbonates, averaging 20 per cent. lead and 46 ounces per ton.—Retallick's workings. The ore mined by tributers on these workings was 17 tons carbonates, averaging 32 per cent. lead and 17 ounces silver per ton.—Junction 300 level. Prospecting work has been commenced on sulphide lode showing at boundary, which will be followed northwards into our property; face of drive in good grade sulphide ore.—Ore shipments. Another parcel of ore has been delivered and sold to Block 14 Works, Port Adelaide—viz., 113¾ tons (net) first-class carbonate ore from Marsh shaft, containing 23¾ tons lead, and 7029 ounces silver. The week's assays vary—carbonates from 5 to 49 per cent. lead, and 6·2 to 108·2 ounces silver per ton, sulphides from 2·5 to 34·5 per cent. lead, 3·5 to 34·4 ounces silver, and 5·92 to 24·34 per cent. zinc.

CRAVEN'S CALEDONIA.—The following fortnightly report has been received from the mine, dated Charters Towers, May 23:—In the underhand stope from No. 9 level the reef is about 9 inches thick. In the five stopes over No. 9 level the reef will average about 6 inches. The level on the hanging-wall reef in No. 8 has been extended a further 15 feet, making a total of 80 feet from the end of the crosscut, and there are about 7 inches of very nice-looking stone on the footwall, also about 2 inches on the hanging-wall. I started an underhand stope from this level, and there are about 8 inches of stone in the face. In the first three stopes over this level the reef will average about 8 inches, and in the other four stopes the reef will average about 1 foot, and it seems to be making bigger as we rise on it. The haulage of quartz for the fortnight is 100 tons, 48 tons of which has gone to the mill, leaving 52 tons in the paddock.—(Signed) G. Cabes-i.

CONSOLIDATED GOLD MINES OF WESTERN AUSTRALIA.—Recent letters from the Coongan property of the company report very satisfactory progress. Underlay shaft has been sunk to a depth of 198 feet, and the reef still continues of good size, with an average yield of about 1 ounce per ton. The 75 feet level has been driven east of the shaft 55 feet, at which point the reef is reported to be 3 feet thick. The well has been sunk 101 feet, and is yielding a sufficient quantity of water to decide the manager to commence removing the Huntingdon mills from their present site to a position adjoining the mine block. By this means a considerable expense in cartage will be saved. The manager has also ordered an additional Huntingdon mill.—Mallina East and Mallina East Extended. Under date April 11, the manager reports as follows:—The shaft in which the work is at present being carried on is 33 feet deep. I have put in a drive to the eastward extending 32 feet. In this shaft the reef is visible from the surface, and it also extends the full length of the drive. The reef is 18 inches wide in the shaft and drive, and is carrying fine gold throughout. In the Extended block work is going on, and a shaft is down to water level. I am now driving to the north, but I do not anticipate judging from the reef in the Main (Corporation) block, to fetch the reef under 40 feet from the shaft.—Nicol. Extracts from report, dated April 25. I have on the Great Chirrita, put down another underlay shaft to a depth of 39 feet, and I expect to get water within 1 or 2 feet more. I think I can safely say that I have taken out 35 to 40 tons of good stone. The old underlay shaft which M. and W. started, and left at a depth of 23 feet, I have carried down to water level 39 feet. I have got out of this shaft about 25 tons of stone. I have got both of these shafts in good going order now, and will soon run up a large quantity of stone.—The Westward Ho! I have a drive of about 25 feet to the west along the reef. In this drive the stone used to come and go all the way along. Sometimes I would have a face showing from 18 to 22 inches, then for a few feet it would cut out to about 8 inches. I have started another drive to the east. There is about 30 to 35 tons of stone raised out of this shaft. Everything is going along as well as possible now.

MYSORE REEFS (Kangundy).—Fortnightly report of Captain Scantlebury, dated June 25: Underlie shaft. This shaft has been sunk 7 feet, now 73 feet below the 325 feet level. The lode is wide between walls—over 5 feet—but split up in small branches and stringers of quartz. The rock is fearfully hard. When we get down into an easier rock, the lode will undoubtedly improve in value.—Stopes in bottom 325 feet level north. The quartz is 1 foot 9 inches wide, and worth 2½ ounces of gold to the ton. 325 feet level north has been extended 10 feet 6 inches, now 159 feet from shaft. The quartz is 6 inches wide, and worth by panning 15 dwts. of gold to the ton.—Vertical shaft. The 260 feet level north has been extended 13 feet 3 inches, now 175 feet from shaft. The quartz is 1 foot wide, assaying 10 dwts. of gold to the ton. Winze below this level has been sunk 2 feet 9 inches, now 25 feet below the level. The quartz is 3 feet 6 inches wide, and worth 18 dwts. of gold to the ton. Winze below 200 feet level south has been deepened 3 feet 3 inches, now 75 feet 6 inches below the level. The quartz is 1 foot wide, assaying 12 dwts. of gold to the ton. Winze below 200 feet level north has been sunk 3 feet 6 inches, now 30 feet below the level. The quartz is 18 inches wide, assaying 10 dwts. of gold to the ton. Trial shaft south has been sunk 4 feet, now 37 feet from surface. The quartz is 12 inches, and worth 3 dwts. 6 grains of gold to the ton. During the past fortnight we have had a great deal of fever among our workmen, and it has been with much difficulty that we have kept the places going. I am pleased to say the fever is abated, and I hope we shall make better progress in the coming two weeks.

MOUNT LYELL.—The London board have received the following report from the Melbourne board for the week ending May 29: Surface prospecting shaft, hanging wall. The shaft has been sunk 5 feet, total 47 feet; there is no change to report; the ore maintains its assay value for gold and silver.—No. 1 crosscut, north drive No. 3 tunnel. The crosscut has been extended 2 feet, total 8 feet.—No. 2 crosscut north drive No. 3 tunnel. This crosscut has been driven 2 feet, total 4 feet, in solid pyrites.—Indicator winze, No. 3 tunnel. The winze has been sunk 2 feet, total 115 feet; the country has been much harder.—North drive, No. 4 tunnel. The contractors have driven 2 feet, total 162 feet; country schist rock.—No. 1 crosscut, north drive No. 4 tunnel. The crosscut has been advanced 3 feet, total 15 feet.—South drive No. 4 tunnel. The south drive has been advanced 6 feet, total 108 feet; this drive is being extended along the pyrites past the engine shaft.—No. 1 crosscut, south drive, 50 feet level engine shaft, No. 4 tunnel. The face has been advanced 3 feet, total 9 feet; there is no change.—No. 1 rise, south drive, 50 feet level engine shaft, No. 4 tunnel. The rise has been put up 3 feet, total 47 feet 6 inches; country unchanged.—North drive, 100 feet level engine shaft, No. 4 tunnel. The face has been driven 3 feet, total 130 feet; the pyrites are breaking better.—South drive, 100 feet level, No. 2 shaft. The drive has been advanced 2 feet, total 36 feet 6 inches: the pyrites are still very hard.—No. 5 tunnel. The contractors have driven 2 feet, total 1026 feet; the rock is very hard conglomerate.—Progress report for week ending May 29: Through tram, Rails laid to 11 chain peg, and ballasting completed to 30 chain peg.—Haulage line. Station yard and bank engine site in progress; concrete foundations in position, and ready for erection of machinery upon arrival of engineer. Bridge at 40 chains making good progress. Smelter site in progress for full length. Converter site, clearing commenced. Brick and sawmill plant running full time. Weather broken and showery. Rainfall 4 inches.

MYSORE.—R. Hancock, June 25: Mining operations for the fortnight ending June 24: Rowse's shaft, 1460 feet level north of crosscut west. This end has been driven 9 feet, making a total distance of 201 feet; there is nothing here to report.—1460 feet level north of sump winze. This level has been driven 19 feet, making a total distance driven of 278 feet. The lode is 3 feet 6 inches wide, assaying 1 ounce 3 dwts. 6 grains.—1460 feet level south of sump winze. Driving south from the bottom of the winze. Driven 20 feet, making a total distance driven of 60 feet. The lode is 2 feet 6 inches wide, assaying 4 dwts. 13 grains. The rise in the back of this level has been put up 12 feet, making a total height of 78 feet. We have suspended this, and started to rise vertically against Ribblesdale's shaft 52 feet from the back of the level.—1360 feet level south of crosscut. There are three stopes in the back of this level, the average width of the lode being 1 foot 8 inches, giving an average assay of 12 dwts. 14 grains.—1360 feet level north of crosscut. There are two stopes in the back of this level, the average width of the lode being 1 foot 6 inches, giving an average assay of 3 dwts. 22 grains.—1363 feet level south of sump winze. This level has been driven 16 feet, making a total distance driven of 85 feet. The lode is 4 feet wide assaying 10 dwts, 10 grains.—1260 feet level north. This level has been driven 16 feet, making a total distance driven of 780 feet. There is nothing here to report. There are five stopes in the back of this level, the average width of the lode being 4 feet 2 inches, giving an average assay of 18 dwts. 19 grains. Driving south on the fold from the top of the sump winze driven 8 feet, making a total distance driven of 17 feet. The lode is 2 feet wide, assaying 11 dwts. 17 grains.—1260 feet level south. There are three stopes in the back of this level, the average width of the lode being 3 feet 8 inches, giving an average assay of 18 dwts. 17 grains.—1160 feet level north. There are four stopes in this level, the average width of the lode being 1 foot 10 inches, giving an average assay of 16 dwts. 21 grains.—1160 feet level south. This level has been driven 22 feet, making a total distance driven of 452 feet 6 inches. The lode is 9 inches wide, assaying 4 dwts. 13 grains. There are two stopes in this level, the average width of the lode being 1 foot 6 inches, giving an average assay of 1 ounce 9 dwts. 3 grains.—North of the crosscut east. This end has been driven 1 foot 6 inches, making a total distance driven of 104 feet 6 inches. The lode is 9 inches wide, assaying 9 dwts. 2 grains.—South of the crosscut east. This end has been driven 13 feet, making a total distance driven of 54 feet. The lode is 2 feet wide, assaying 5 dwts. 5 grains. The lode in the stope in the back of this level is 2 feet wide, assaying 1 ounce 5 dwts. 4 grains.—1060 feet level north of crosscut. This level has been driven 12 feet, making a total distance driven of 55 feet. There is nothing here to report.—890 feet level north of crosscut. This end has been driven 20 feet 6 inches, making a total distance driven of 358 feet 6 inches. The lode is 1 foot wide, assaying 1 ounce 12 dwts. 6 grains. The winze in the bottom of this level has been sunk 16 feet, making a total depth of 22 feet. The lode is 4 feet wide, assaying 2 ounces.—There are three stopes in the back of this level, the average width of the lode being 4 feet 4 inches, giving an average assay of 1 ounce 4 dwts. 22 grains.—890 feet level south. This level has been driven 12 feet, making a total distance driven of 348 feet.—780 feet level north on new chute. There are four stopes in this level, the average width of the lode being 2 feet 3 inches, giving an average assay of 1 ounce 1 dwt. 23 grains.—620 feet level north of crosscut. There are four stopes in this level, the average width of the lode being 3 feet 1 inch, giving an average assay of 6 dwts. 16 grains.—620 feet level south of crosscut. There are two stopes in this level, the average width of the lode being 2 feet 6 inches. giving an average assay of 13 dwts. 6 grains.—Driving south on the branch in the 620 crosscut east. This end has been driven 2 feet 3 inches, making a total distance driven of 48 feet. The lode is 1 foot wide, assaying 3 dwts. 22 grains.—Crocker's shaft. This shaft has been sunk 23 feet, making a total depth of 271 feet below the 620 feet level.—466 feet level north. The lode in the stope in the back of this level is 4 feet wide, assaying 3 dwts. 6 grains.—400 feet level north. There are two stopes in the back of this level, the average width of the lode being 2 feet, giving an average assay of 8 dwts. 3 grains.—236 feet level north. The lode in the stope in the back of this level is 1 foot wide, assaying 1 ounce 17 dwts.—Taylor's shaft. 466 feet level north. The lode in the stope in the back of this level is 2 feet wide, assaying 12 dwts. 6 grains.—Gilbert shaft. 520 feet level north. There are four stopes in the back of this level, the average width of the lode being 2 feet 1 inch, giving an average assay of 8 dwts. 21 grains. 520 feet level south. The lode in the stope in the back of this level is 2 feet wide, assaying 10 dwts. 10 grains.—430 feet level north. There are two stopes in this level, the average width of the lode being 2 feet, giving an assay of 13 dwts. 8 grains.—360 feet level north. The lode in the stope in the bottom of this level is 2 feet 4 inches wide, assaying 1 dwt. 7 grains.—290 feet level south. The lode in the stope in the bottom of this level is 2 feet wide, assaying 7 dwts. 19½ grains.—290 feet level north. The lode in the stope in the back of this level is 2 feet 3 inches wide, assaying 1 ounce 12 dwts. 16 grains. 180 feet level south. There are two stopes in the back of this level, the average width of the lode being 2 feet 8 inches, giving an average assay of 18 dwts. 22 grains.—Tennant's shaft. 750 feet level north of the crosscut west. This level has been driven 16 feet, making a total distance driven of 27 feet. The lode is 1 foot wide, assaying 3 dwts. 6 grains.—520 feet level north. There are two stopes in the bottom of this level, the average width of the lode being 1 foot 9 inches, giving an average assay of 5 dwts. 12 grains.—Schaw's shaft. 450 feet level north of crosscut. There are three stopes in the back of this level, the average width of the lode being 1 foot 4 inches, giving an average assay of 10 dwts. 10 grains.—450 feet level south of crosscut. This level has been driven 1 foot 9 inches, making a total distance driven of 332 feet 3 inches. The lode is 9 inches wide, assaying 12 dwts. The winze in the bottom of this level has been sunk 12 feet 3 inches, making a total depth of 90 feet. The lode is 2 feet wide, assaying 12 dwts. 14 grains. There are three stopes in the back of this level, the average width of the lode being 1 foot 8 inches, giving an average assay of 7 dwts. 9 grains.—McTaggart's shaft. This shaft has been sunk 1 foot 9 inches, making a total depth of 70 feet 9 inches below 550 feet level.—550 feet level north. This level has been driven 9 feet, making a total distance driven of 143 feet 11 inches.—550 feet level south of the crosscut west. This end has been driven 13 feet 3 inches, making a total distance driven of 116 feet 3 inches. The lode is 2 feet 3 inches wide, assaying 13 dwts. 1 grain.—320 feet level south. There are three stopes in the back of this level. the average width of the lode being 1 foot 7 inches, giving an average assay of 7 dwts. 18 grains.—Glen shaft, 250 feet level north No. 1 crosscut east. This has been driven 1 foot, making a total distance driven of 29 feet 9 inches.—Ribblesdale's shaft. The men are engaged stripping down the rise and timbering.—Vertical rise from incline rise back 1460. This was started on the 19th instant, and has been put up 5 feet.—Williams' shaft, crosscut east from the 173. This has been driven 2 feet 6 inches, making a total distance driven of 131 feet 8 inches.—Health. Good.—Water. Very scarce.

NINE REEFS.—Superintendent's report for fortnight ending June 25: Vyvyan's shaft. The quartz in the stopes in the bottom of the 220 feet level south varies from 6 to 9 inches wide; it, however, assays 1 ounce 1 dwt. 14 grains of gold per ton. The two stopes in the back of this level yield quartz of from 6 to 10 inches wide, and assay on an average 1 ounce 8 dwts. 4 grains per ton. The stopes in the bottom and back of the 145 feet level south yield quartz of from 9 inches to 1 foot wide, and of an average assay value of 10 dwts. 9 grains per ton.—South shaft. This shaft has been sunk 11 feet 6 inches, or 40 feet below the 210 feet level. The lode is steadily improving in appearance, and is now about 3 feet wide, but as yet it only carries a little quartz, and this of a low value—viz., 2 dwts. 14 grains per ton. I am, however, hoping this will, ere long, very much improve. The crosscut west of the shaft at the 210 feet level has been driven 17 feet, or 93 feet from the shaft. Nothing of value has been met with in the recent drivage. The 210 feet level north has been extended 12 feet 3 inches, or 97 feet from the shaft. The lode is now from 3 to 4 feet wide, but as yet it only occasionally yields a little quartz, and this only of a value of about 5 dwts. per ton. 210 feet level south has been advanced 4 feet 9 inches, or 77 feet 3 inches from the shaft. The lode now presents a more kindly appearance; it also yields a little quartz, but as yet it is of a low grade.—McTaggart's No. 1 shaft. This shaft has been sunk 6 feet 6 inches, or 40 feet 6 inches below the 100 feet level. The lode is from 10 to 14 inches wide, the quartz from which assays this week 9 dwts. 4 grains per ton. The 100 feet level north has only been driven 3 feet 3 inches, or 124 feet 9 inches from the shaft. This end is still in dyke, consequently it is very hard for driving through.

No. 7 NORTH-EAST QUEEN.—The following fortnightly report has been received from the mine, dated Charters Towers, May 24: Tuckett and party crushed 13 tons 13 cwts. 2 qrs. of quartz for a yield of 25 ounces 5 dwts. 9 grains of smelted gold. They have since given up that block at the back of No. 1 level east, and yesterday I let them a block above No. 3 level west, where there is 6 inches of stone showing in the face, carrying good gold, though they will have three or four days' dead work to do previous to starting on the stone. The block given up by Tuckett and party was taken by Brown and party. I also let Brown and party a block of ground below No. 3 level east from the end of the old stopes to the level to the east of Wherry's block, and I am pleased to report they have now a foot of stone in the face, of good quality. In the stope

above No. 1 level the same party have from 15 to 18 inches of stone in the face to-day, which looks good mineral stone. This party contains four men, hence the reason of having two blocks of ground. They are working two men in each block. Hamilton and party above No. 2 level have 15 to 18 inches of good stone on the eastern side of the shaft, and from 6 to 8 inches of stone on the western side quite equal to their last crushing, which went 2 ounces 17 dwts. 3 grains. Balch and party on the eastern side of the shaft below No. 2 level have a splendid make of stone on the footwall about 8 inches in thickness, which shows gold. They will average 10 inches along the stope. In their stope at the back of No. 3 level, after breaking the slide met there, they have from 3 to 6 inches of stone of good quality. Balks and party on the western side of the shaft below No. 2 level have their stope looking well. They have from 2 to 18 inches of stone right along the face, and will average 10 inches of splendid stone. Wherry and party at the back of No. 4 level east also have a great face of stope at present in sight; their footwall reef will average 20 inches of heavy mineral stone, and there is 10 to 12 inches of good stone on the hanging-wall, just ahead of where they are now working. We have not hauled any stone from them for the fortnight, but I think when they have their pass cleaned down they will have 20 tons broken below. This will be hauled during the coming week. Taking all the blocks together I have not seen them look so well since I took charge of the mine. We have hauled for the fortnight about 28 tons of quartz.—John J. L. Williams.

NUNDYDROOG.—Thomas Richards, June 25: Report for the fortnight ending June 22. Taylor's shaft. Owing to the accident to the main shaft pump work, referred to in the last report, work in the bottom level here was prevented for nearly a fortnight. The 1240 feet level north has consequently only been advanced 1 foot, total distance 17 feet 6 inches. Lode 1 foot wide, assays 2 dwts. 12 grains. The 1160 south has been driven 17 feet, total distance 109 feet. Quartz 8 inches wide, assays 3 dwts. 18 grains. The 1160 north rise has been put up 10 feet 6 inches, total height 71 feet 6 inches; communicated with the 1080 feet level. At the point of communication the lode is 1 foot wide, assaying 11 dwts. 6 grains. The 1000 north rise has been put up 11 feet, total height 69 feet. Lode 1 foot wide, consisting of two branches of quartz, assays 1 ounce 1 dwt. 6 grains. In the stope in the back of the 760 north the lode is 2 feet 6 inches wide, and assays 13 dwts. 6 grains. The lode in the stope in the bottom of the 680 north is 1 foot 6 inches wide, and assays 10 dwts. In the stope in the back of the 600 north the lode is 2 feet wide, and assays 12 dwts. 12 grains. In two stopes in the bottom of the 520 north the lode averages 2 feet in width, and 10 dwts. 15 grains in assay value. The 450 north intermediate drivage has been extended 2 feet 6 inches, and communicated with the rise from the 520 feet level. Stoping has now been commenced from the rise northwards, where the quartz is 2 feet wide, assaying 6 dwts. 6 grains. In the stope in the bottom of the 370 feet level north the lode is 2 feet wide, and assays 7 dwts. 12 grains.—Main shaft. The water was drained and work resumed at the 1680 feet level on the 15th inst. Plat is now being cut at this level preparatory to the further sinking of the shaft. The 1080 south has been driven 10 feet, total distance 92 feet. Lode 8 inches wide, contains only a trace of gold. The 1080 north has been driven 10 feet, total distance 108 feet. Lode 2 feet wide, assays 1 ounce 5 dwts. The 1000 north from crosscut east has been extended 9 feet 6 inches in the footwall, without meeting any further portion of the lode. The 1000 north crosscut east has been driven 5 feet, total distance from shaft 205 feet. Lode disordered, and of no value. The 1000 north side drivage south from crosscut east has been extended 16 feet, total distance south from crosscut 36 feet. Lode 2 feet wide, assays 3 ounces 17 dwts. 12 grains. In the stope in the back of the 1000 south the lode is 4 feet wide, and assays 15 dwts., and in the stope in the back of the 920 south it is 7 feet wide, worth 1 ounce 7 dwts. 12 grains. A crosscut west has been driven 9 feet 6 inches from the end of the 920 north, and a portion of the lode has been met with, which will be opened upon northwards. The lode in the stope in the bottom of the 840 south is 2 feet 6 inches wide, and assays 1 ounce 1 dwt. 6 grains, and in three stopes in the back of this level the lode averages 3 feet 6 inches in width, and 9 dwts. 14 grains in assay value. The 680 south from crosscut east (north of main shaft) has been driven 9 feet, total distance 41 feet 6 inches. Lode 2 feet wide, contains a trace of gold. The 680 north from crosscut east has been driven 10 feet, total distance 17 feet. Lode 1 foot wide, containing stringers of quartz; is of no assay value. The 680 north crosscut west has been extended 17 feet, total distance 131 feet; no change. The 520 has been extended eastward on the crosscourse 25 feet, total distance 339 feet. Some quartz stringers have been met with. The 520 north from crosscut east has been driven 9 feet, total distance 55 feet. Lode of no assay value. The 370 crosscut east has been extended 7 feet 6 inches, total distance 60 feet 6 inches. A few quartz stringers have been met with. Kennedy's shaft has been sunk 4 feet, total depth 50 feet below the 600 feet level. The 600 south has been driven 15 feet, total distance 76 feet. Lode 1 foot wide, assays 3 ounces 5 dwts. The 600 north has been driven 29 feet 6 inches, total distance 107 feet. Lode 1 foot 3 inches wide, assays 5 dwts. The 520 south has been driven 24 feet, total distance 566 feet. Lode 1 foot 6 inches, assays 6 dwts. 6 grains. The 520 north crosscut west has been driven 16 feet, total distance 18 feet. A few stringers of quartz have been met with. The 520 north crosscut east has been extended 18 feet, total distance 46 feet. Some quartz stringers have been intersected of no assay value. The 440 south has been driven 26 feet, total distance 996 feet. Lode 6 inches wide, with two quartz leaders; assays 1 ounce 2 dwts. 12 grains. The 440 south rise has been put up 23 feet, total height 28 feet. Lode 1 foot wide, assays 3 dwts. 18 grains. In the stope in the back of the 440 south the lode is 2 feet 6 inches wide, and assays 12 dwts. 12 grains. The lode in the stope in the back of the 440 north is 10 feet wide, and assays 3 ounces 3 dwts. 18 grains. The 370 south has been driven 27 feet 6 inches, total distance 717 feet. Lode 4 feet wide, assays 3 ounces 12 dwts. 12 grains. There are two stopes in the bottom of the 370 north, in which the lode averages 3 feet 6 inches in width, and 19 dwts. 9 grains in assay value; and in two stopes in the back of the same level the lode averages 5 feet 3 inches in width, and 1 ounce 16 dwts. 6 grains in assay value. The 370 south from crosscut west, north of Kennedy's, has been driven 11 feet 6 inches, total distance 19 feet. Lode 6 inches wide, containing stringers of quartz, assays a trace of gold. The 300 south has been driven 26 feet, total distance 587 feet. Lode 6 inches wide, with a quartz leader; contains a trace of gold. In the stope in the back of this level the quartz is 8 inches wide, and assays 3 ounces of gold per ton. In the 230 stope on the south side of north shaft the quartz is 4 inches wide, assaying 8 dwts. 18 grains. The lode in the stope in the back of the 160 north is 2 feet wide, assaying 1 ounce 0 dwts. 15 grains. North shaft has been sunk 5 feet 6 inches, total depth 53 feet 6 inches below the 520 feet level. Lode 1 foot wide, contains a trace of gold.

QUEEN CROSS REEF.—Copy of manager's report for fortnight ending May 28: Since my last report the contractors, C. Lind and party, have sunk the vertical shaft 48 feet, total vertical depth 1014 feet from the surface, and 80 feet below the timber. On the 24th we struck a formation; the hanging-wall has been going very steep since then; we have sunk through it about 5 feet, and cut two veins of quartz of poor quality, one near the hanging-wall about 4 inches thick, and the other about 1 foot thick about 3 feet lower down, lying almost flat in the formation, and we are still sinking in soft formation. The tributors are all doing fairly well. Everything in connection with the mine is in good working order.

SOUTH LUIPAARD'S VLEI.—To the directors of the South Luipaard's Vlei Gold Mines (Limited): Gentlemen,—Acting under your instructions I have visited the property of your company, and beg to submit to you the following report thereon.—Situation and extent. Your 110 claims occupy the south-east corner of the farm Luipaard's Vlei, and adjoin on the east the farm Wilpoortje, and on the south the farm Rietvlei, being surrounded by a number of well-known mines, including the Champ d'Or Deep Level, Fern (now reconstructed in France under influential auspices as the "Rip") Luipaard's Vlei Estate and Gold Mining Company, West Rand Violet consolidated, and others. There is attached to the property a large and valuable water right in close proximity thereto, which will afford ample supplies for the company's use, and enable it to sublet to others at a considerable profit.—Reefs. The principal outcrop reef on the property is what is generally known as the Fern or Battery reef, which in its northern course is found in the Violet and West Battery mines, afterwards running through the Champ d'Or Deep and Fern properties, and in its southern bend traversing your claims. This reef has given some of the highest results on the Rand, having assayed as high as 2 ounces, and is by some believed to be identical with the Main reef, but with this I disagree, as, although the banket is similar in appearance, in both reefs the Fern shows a higher percentage of gold than has been found in the Main reef. The Treasury and Ethiopian reefs belonging to the Fern reef series also cross your property, and should be cut at about 300 feet deep, thus adding materially to its value. As these reefs dip south you will find the Deep Levels of the Bothas and all the other reefs worked by the companies to the north of your property, but in view of the number and value of your surface reefs you will not need to work these Deep Levels, which may be profitably sold to other companies or kept as a reserve.—Suggested mode of working. I should advise that the first proceeding on your part should be the vigorous development of the Fern reef, which from its size and high assay value will yield large and early returns, more especially if you adopt the dry crushing and direct cyanide treatment which has proved so successful, and ensures the largest extraction of gold at the lowest cost. Considering the great extent of your property, it will be better to dispose of portions of it to subsidiary companies, reserving (say) one-third for your company's operations, this will afford scope for mining on a large scale for a great number of years. Should you fall in with my suggestions you will be able to keep going 50 stamps, and, taking a low estimate, your profits ought to be at least £54,000 a year from your own operations, not counting the subsidiary companies, but working all grades of ore in the large quantities which you will have at command as soon as your development work is in full swing. As a proof of the strides made in mining in this part of the Rand, I will give you a few particulars of the before-mentioned reconstruction of the Fern Company, which was taken in hand by the same group which rescued the Champ d'Or, and has made such a success of it. This property, now called the Rip, embraces 67 claims, being those of the old Fern Company and some adjoining properties purchased to amalgamate therewith, and the £1 shares, which a month ago were quoted at £4, now fetch £6, and look like going higher. As your property adjoins the Rip on the run of the reefs, there is no doubt whatever that the results of its working must be similar.—(Signed) J. Watts, M.E.

BREMNAES.—The following report has been received from the manager, Mr. John Daw, jun., dated Haugesund, July 13: We are gradually increasing our staff of miners, and hope to restart the drills at an early date.—Section 4, 400 feet level. The lode is running very flat, quartz 15 inches wide, assaying 4½ dwts.—300 feet level. In the winze the quartz is 18 inches wide, carrying a little mineral, and assaying ½ ounce to the ton. Rise and stope in back shows quartz varying from 6 to 10 inches in width. Assay value 4 dwts.—Level south. Lode 4 feet 6 inches, whereof quartz 10 inches, assaying 3 dwts.—200 level south. Lode 4 feet 6 inches wide, carrying 18 inches of quartz, and assaying 6 dwts. gold to the ton. We are inclined to think that this level is entering on a rich shute, traces of which are seen at surface about 100 metres from the main shaft, and lately acquired by this company from the Norwegian company. This is a very important point, as if it proves to be the shute in question there will be a large quantity of auriferous rock at our command, as the ground is intact to surface.—80 feet level. The leader followed for some time has disappeared, and we are now stoping on some quartz just at the throw of the lode. Assay value 4 dwts. As reported last week, the crosscut east in level south has intersected the lode, the width of which is 4 feet. The quartz is about 14 inches wide, assaying from 3 to 4 dwts. We are unable to say if this is the old lode or not, but hope to give more information in a week or two. We have put a couple of men to rise on this lode. Quartz 12 inches, assay value 3½ dwts.—Section 5. Stope in back of level shows 4 inches of quartz, assaying half an ounce to the ton. All work is being pushed ahead as fast as circumstances will allow, and although the men are on development work, we intend to give the result from a crushing of a few tons from both sections about the end of the month.

MOUNT ZEEHAN (Tasmania).—Manager reports for week ending May 31: Silver Queen section. No. 8 lode, No. 4 shaft, sunk 2 feet 2 inches, total below No. 1 level 22 feet. Small progress is due to increase of water in shaft.—Tributers. No. 1 level north extended by tributers 2 feet, total from No. 2 crosscut 46 feet 6 inches. The 2 feet have been very productive, yielding some splendid first-class ore. The different tribute parties have been at work with a fair amount of success, and have netted to us £178 for the month.

VICTORY (Charters Towers).—Copy of manager's report for fortnight ending June 1: No. 1 shaft. Stopes over No. 2 level on Papuan average 10 inches stone, quality same as last crushed. Raised 45 tons.—No. 2 shaft. Cross drive in 320 feet west level driven 4 feet, total 8 feet. Country diorite.—Reef in stopes above No. 1. A level much broken up, and requires to be picked over. Average 15 inches, fair-looking stone. The reef over the intermediate level averages 18 inches; rather mullocky, but carries some good stone. The winze in the No. 7 level sunk 10 feet, total 30 feet. Carries 12 inches fair-looking stone. Raised 100 tons. No. 3 shaft sunk 8 feet, total 68 feet, making a lot of water. At beginning of this week started driving from east end of shaft 12 feet from bottom for purpose of cutting chamber for water; this has been driven 16 feet. Will take fully another fortnight to cut out ground enough to hold 24 hours' water. All work in this shaft will be stopped after this week until poppet-legs and brace are up. Expect to be ready to resume work in shaft in fortnight's time.

YERRAKONDA.—Fortnightly report of Captain Scantlebury, dated June 25; Beresford's shaft. This shaft has been sunk 8 feet 6 inches, now 55 feet below the 300 feet level. The lode is over 7 feet wide, composed of quartz and iron pyrites, but the samples from it are again lower, from 3 to 4 dwts. of gold to the ton. Crosscut west, 200 feet level north, has been advanced 10 feet, now 61 feet from level. We have from 8 to 10 feet more to drive to communicate with the new engine shaft. New engine shaft has been sunk 5 feet, now 208 feet from surface. The rock is not only hard but the water very quick—in fact, if we had not a powerful winding engine and large barrels, containing over 150 gallons each, we should not be able to sink without pumps. South shaft has been sunk 7 feet, now 123 feet from surface. The quartz is 2 feet 6 inches wide, and worth 4½ dwts. of gold to the ton. We have during the past fortnight had a lot of fever, which has very much retarded the work.

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MEANS OF COMMUNICATION AT COOLGARDIE.—The Director of Public Works and Commissioner of Railways (Mr. Venn) has arrived at Southern Cross, and was interviewed by the mayors, councillors, and a number of citizens at the Club Hotel. In the course of the interview he promised reductions in freights and fares on the Yilgarn line from the beginning of the coming financial year. The reports which had appeared in the Press with regard to his Coolgardie statements on this matter were, he remarked, incorrect and misleading. Mr. Venn also stated that the Government had authorised the cutting of a new and very direct road from Southern Cross to Mount Jackson. The necessity for the duplication of a telegraph line from Perth, through Southern Cross to Coolgardie, was brought under his notice, and Mr. Venn promised to bring the subject before his colleagues.

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THE END OF THE CENTURY draws near, and somehow the fact impresses one and makes one think. On the threshold, as it were, of the twentieth century, we pause and take a glance back over the years that are gone. How much has happened during this now dying century! What wonders have been given to the world! The power and use of steam, the electric telegraph—these and many others are the discoveries of the nineteenth century. But that which will cause the closing century to stand out above all that have gone before, and all that are to come, is the fact that in its earlier half was discovered a priceless blessing to mankind—those universal remedies—Holloway's Pills and Ointment.

# METAL CIRCULARS.

MESSRS. HENRY BATH AND SON'S Copper Report, dated July 17, says:—The Chili charters for the past fortnight are advised as 850 tons. The latest exchange is 17d. The market opened with G.M.B's. at £42 7s. 6d. cash and a steady advance took place, culminating on July 8 at £43 11s. 3d. cash. The price fell away on the following day to £43 1s. 3d., but on July 10 again improved to £43 8s. 9d., and the rise continued until £44 2s. 6d was reached on July 15. The market has eased off a little since then and we close with buyers at £44 1s. 3d. cash, £44 7s. 6d. three months. The business doing on the Metal Exchange has been a large one, and G.M.B's., which at the commencement of the fortnight had no special attraction at £42 10s., have now been rushed for and the price carried up 30s. per ton on a moderate improvement in the figures and a strong market in the United States. There is no doubt a lively trade over there, but it has not made itself felt in this country so far. However good the demand may be they cannot consume their production, which is not a decreasing one, and the surplus must, sooner or later, come to this side. What this surplus will be and how it will be manipulated will be the two governing factors in the future. The shipments from United States for the first half of the month are 2678 tons, of which 1872 tons were in the second week. Arrivals and deliveries at Hamburg, Antwerp, and Rotterdam are 2349 tons. Imports of American copper into England have been 1133 tons, and into France 825 tons, or 1958 tons against 1571 tons last year. Total actual deliveries for the fortnight are 5400 tons against 4429 tons imports. The stocks have decreased 971 tons. Total visible supply shows 56,911 tons against 58,182 tons last fortnight. We have no transactions in furnace material to report this fortnight.

| England and France. | Imports. | Deliveries. | Stocks. | Afloat & Chartered for. | Total visible supply |
|---|---|---|---|---|---|
| Chili copper at Liverpool, Swansea, and in France | 1079 | 759 | 41,050 | 3150 | 44,200 |
| Foreign copper in London, chiefly Australian and Japanese | 144 | 468 | 3585 | 1050 | 4635 |
| American copper at Liverpool, London, and Swansea | 1133 | 1399 | 3595 | — | 3595 |
| Other copper at Liverpool & Swansea | 1168 | 2014 | 3385 | — | 3385 |
| English copper at Liverpool & Swansea | — | — | — | — | — |
| American copper in France | 825 | 670 | 927 | — | 927 |
| Other copper in France | 80 | 120 | 169 | — | 169 |
| Tons fine copper during the fortnight | 4429 | 5400 | 52,711 | 4200 | 56,911 |
| Against tons on July 2, 1895 | 3200 | 6039 | 53,682 | 4500 | 58,182 |
| Against tons on June 18, 1895 | 4904 | 3344 | 51,521 | 4650 | 56,171 |

Supply of West Coast copper may be estimated from the following figures:—Actual stocks at Swansea, Liverpool, and in France, 41,050 tons; afloat and chartered for at date of last advices per mail and cablegram, 3150 tons; total 44,200 tons, against 44,270 tons July 2, 1895, against same date 1894, stock 34,430 afloat, &c., 4300 equals 38,730 tons, against same date 1893, stock 33,743 afloat, &c., 3100 equals 36,843 tons, against same date 1892, stock, 33,999 afloat, &c., 3750 equals 37,749 tons, against same date 1891, stock 33,054 afloat, &c., 2500 equals 35,554 tons. Quotations for West Coast copper are as follows:—

| To-day. | July 17, 1894. | July 18, 1893. | July 19, 1892. | July 17, 1891. |
|---|---|---|---|---|
| Ores ..... } Regulus... } | 8s. 3d. to 9s. | 7s. 6d. | 8s. 7½d. | 9s. 10½d. |
| Bars..... | £44 1s. 3d. | £38 12s. 6d. | £42 10s. | £44 12s. 6d. | £54 2s. 6d. |
| Ingots, Ormeneta | Nominal. | Nominal. | £47 15s. | £48 10s. | £58 10s. |
| Barilla..... | — | — | — | — | — |
| Precipitate | about 9s to 9s 6d | about 8s. | 9s. | 9s. | 10s. 4½d. |

For other descriptions we quote to-day:—Wallaroo nominal, Burra Burra nominal, Best Selected about £47 10s. to £48, English tough about £47, English manufactured about £53, India sheets about £50, G.M.B. copper £44 1s. 3d. cash, and £44 7s. 6d. three months.—Sulphate of copper: About £15 10s. cash and forward.—Tin: Closing at £63 15s. cash, £64 three months.—Spelter: About £14 7s. 6d. English about £15. Blende of 50 per cent. is worth about £2 15s., and calamine about £2 17s. 6d.—Lead: Steady. About £10 12s. 6d. With silver 50 to 80 ounces about £10 12s. 6d. Lead ore of 70 per cent. is worth about £4 per ton.—Pig Iron: Closing quotations for Scotch pigs are about 45s. 4d.; Middlesbrough 36s. 3d.; hematite 45s. 3d. cash.—Antimony: Quiet. Star regulus about £32. Ore £8 to £8 10s. for 50 per cent. good quality and produce. Crude about £15 per ton.—Quicksilver: The official price is £7 5s. Seconds steady, 1s. to 1s. 6d. less.—Bar silver: Quiet at 30½d.—Discount: The Bank Rate remains at 2 per cent.

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Messrs. HARRINGTON and Co.'s Copper Report dated Liverpool, July 17, has the following:—Chili charters for the past fortnight are cabled as 850 tons, making the total since 31st December last 12,400 tons, against 11,100 tons same time last year. Exchange 17¼d. Since our last we have had an excited market for G.M.B's, values at one time showing an advance of £2 per ton, the cause of the rise being the strong position of copper in the States, where the price is quoted at 11 cents per pound, and where several million pounds of copper have been sold by the Calumet and Hecla Company within the last few days at this price for September delivery. The market for G.M.B.'s opened at £42 8s. 9d. cash and £42 16s. 3d. three months, and advanced till £43 11s. 3d. and £43 17s. 6d. respectively was touched on the 8th; next day there was a sharp decline to £43 1s. 3d. and £43 8s. 9d., market recovering, prices again advanced till £44 5s. and £44 12s. 6d. for both positions were paid on the 13th, this advance, however, was not maintained, and we close firm to-day at £44 2s. 6d. cash and £44 8s. 9d. three months' prompt. The following are the returns of the copper producers' committee;—

| | June. | 12 months. | Maximum allowed under old agreement. |
|---|---|---|---|
| European production | 6,985 | 85,760 | 85,018 tons |
| American ,, | 11,841 | 139,134 | 125,217 ,, |
| ,, from pyrites | 1,100 | 18,140 | 14,509 ,, |
| Total | 19,706 | 242,974 | 224,745 ,, |
| American exports | 8,600 | 71,576 | 40,000 ,, |

The total stocks in Liverpool, Swansea, London, and Havre are 52,711 tons, against 53,682 tons on the 1st inst., showing a decrease of 971 tons for the fortnight. The stocks include about 1300 tons of copper sold, but not yet delivered to smelter. The visible supply for the fortnight is 57,058 tons, against 58,515 tons on the 1st inst., showing a decrease of 1457 tons. Refined and manufactured sorts are firm, official quotations being:—Tough cake, £46 5s. to £46 15s.; best select, £47 5s. to £47 15s.; Indian sheets, £50 to £50 10s.; strong sheets, £53; and yellow metal sheets, 4¼d. to 4¾d. per lb. The sales of furnace material only comprise 120 tons argentiferous Mexican matte and 20 tons argentiferous Mexican bars, sold on private terms. Import of Chili copper during the past fortnight, 704 tons, against 560 tons fine same time last year; delivery of Chili copper during the past fortnight, 669 tons fine, against 132 tons fine same time last year; import of other copper during the past fortnight, 2251 tons fine, against 2328 tons fine same time last year; delivery of other copper during the past fortnight, 3300 tons fine, against 2121 tons fine same time last year.—Tin. The market for Straits since our last has been irregular—highest £64 2s. 6d., lowest £62 17s. 6d., closing to-day at £63 17s. 6d., Australian £64 7s. 6d., English £67 10s., to £68, and Peruvian £47 to £59 according to quality. Sulphate of copper firm at £15 10s. spot and forward. Lead during the past fortnight has been steady, closing firm at £10 12s. 6d. for Spanish and £10 15s. for English.—Spelter. The market since our last has been easier, but closes steady at £14 7s. 6d. to £14 10s. for ordinary Silesian brands.—Quicksilver. Since our last the market has declined, and closes steady at £7 4s. per bottle for Spanish.—Bar silver. The market has fluctuated between 30½d. and 30 7-16d., closing to-day at 30½d. per ounce standard. Antimony steady; Star regulus at £32 per ton; ore irregular, about £7 10s. to £8 for 50 per cent. good quality and produce. Bank rate of discount remains at 2 per cent.

Messrs. JAMES LEWIS and SON'S Mid-monthly Report on Copper dated July 16, says:—Notwithstanding the large increase in the stocks made up at the beginning of the month and the large exports from the United States during June, the value of good merchantable copper was sustained by steady buying, partly on American account, and gradually advanced from £42 5s. cash, on the 2nd inst., to £43 11s. 3d. on the 8th, falling to £43 1s. 3d. next day on realisations, only to advance again to £44 1s. 3d. yesterday, the closing value being £44 cash and £44 6s. 3d. three months' prompt, sellers. It is generally felt that with the steady improvement in trade generally, and especially in the demand for iron and steel, with the large consumption in the United States, copper at the present level of values is a safe investment. With money obtainable at ½ per cent. per annum, the cost of holding warrants is very small, and they are consequently becoming very scarce, while the inducement to sell three months' prompt at a premium of only 5s. per ton is much diminished. The New York market has advanced to 11 cents per lb., at which several million pounds of ingot copper are reported to have been sold by the Calumet and Hecla Company to home consumers for delivery by September, their previous large sale having been at 9½ cents per lb. This price is considerably above the parity of values here, and if further supplies of American refined copper are to be obtained, it would appear that European consumers will have to pay an advance on rates current here. Producers' returns are as follows;—

| | June. | | January to June. | | 12 months. |
|---|---|---|---|---|---|
| | 1895. | 1894. | 1895. | 1894. | 1894. |
| European production... | 6,925 | 7,611 | 42,484 | 45,258 | 88,505 tons. |
| American production... | 11,641 | 13,972 | 70,612 | 73,951 | 142,473 ,, |
| Do. Imports ..... | 1,100 | 1,340 | 9,100 | 8,040 | 17,089 ,, |
| Do. Exports* ... | 8,600 | 6,976 | 33,314 | 39,769 | 77,130 ,, |

* United Kingdom ..... 2,493 tons.
France ..... 1,936 ,,
Germany, Holland, &c. ..... 4,171 ,,
Mexico ..... — ,,
8,600 tons.

American exports for the first half of July are 3200 tons. Stocks have decreased 971 tons, and the visible supply 1457 tons during the past fortnight. Imports to date are 1286 tons, and deliveries 2919 tons greater than last year. The arrivals in England and France for the fortnight have been 4429 tons, and the deliveries 5400 tons. The arrivals of Chili in Liverpool and Swansea have been 704 tons, and the deliveries 669 tons, and from other countries 2251 and 3300 tons fine respectively. The arrivals here and in Swansea from the United States have been 210 tons bars, 100 tons ingots, and 1418 tons matte, equal to about 1083 tons fine, and in France 825 tons fine. The Chili charters for the past fortnight are advised as 850 tons, and Exchange 17¼d. Sales of furnace material have been *nil*.—Quotations to-day are: Chile bars and good merchantable copper, £44 for cash and £44 6s. 3d. for three months' prompt, sellers. English best selected ingots, £48 10s. to £49; and tough cake £47 10s. to £48 per ton; ore of 20 per cent. 8s. 7½d.; regulus and matte, 8s. 10½d. per unit.

## TIN TICKETING.

A TICKETING for tin ores was held at Tabb's Hotel, Redruth, on Tuesday, with the following result:—

VALUES OF ORES SOLD BY EACH MINE.

| Mines. | Tons cwts. | Per ton. £ s. d. | Value. £ s. d. |
|---|---|---|---|
| Wheal Grenville a | 20 0 | £40 7 6 | £807 10 0 |
| do b | 16 0 | 40 7 6 | 646 0 0 |
| do No. 2 | 4 0 | 24 5 0 | 101 0 0 |
| Dolcoath No. 1 | 17 0 | 38 15 0 | 658 15 0 |
| do No. 1a | 16 0 | 38 10 0 | 616 0 0 |
| Tincroft | 16 0 | 32 17 6 | 526 0 0 |
| do | 16 0 | 33 5 0 | 532 0 0 |
| East Pool a | 15 0 | 34 0 0 | 510 0 0 |
| do b | 15 0 | 33 12 6 | 504 7 6 |
| do No. 2 | 1 10 | 17 0 0 | 25 10 0 |
| Carn Brea No. 1 | 14 0 | 32 12 6 | 456 15 0 |
| do No. 1a | 13 0 | 32 17 6 | 427 7 6 |
| do No. 2 | 1 10 | 24 2 6 | 36 3 9 |
| Wheal Basset No. 1 | 20 0 | 40 15 0 | 815 0 0 |
| do No. 2 | 5 0 | 30 2 6 | 150 12 6 |
| South Frances No. 1 | 12 0 | 37 12 6 | 451 10 0 |
| do No. 1a | 11 0 | 37 17 6 | 416 12 6 |
| West Kitty | 14 0 | 40 5 0 | 563 10 0 |
| Killifreth | 10 0 | 35 7 6 | 353 15 0 |
| Phœnix United No. 1 | 9 0 | 39 7 6 | 354 7 6 |
| South Condurrow | 7 0 | 40 7 6 | 282 12 6 |
| | 253 0 | | £ 9,235 8 9 |

Average price per ton, £36 10s. 0d.

AVERAGE PRICES PER TON.

| | | | |
|---|---|---|---|
| April 9 | £36 7 6 | June 5 | £37 4 6 |
| April 16 | 36 17 1 | June 18 | 36 0 0 |
| May 7 | 37 12 2 | July 12 | 36 14 9 |
| May 21 | 39 0 2 | July 16 | 36 10 0 |

JOE'S REEFS UNITED (SHEBA), LIMITED.—An extraordinary general meeting of the shareholders in this company was held on Monday, at the Cannon-street Hotel, for the purpose of considering and, if thought advisable, confirming resolutions passed at a previous meeting voluntarily winding up the company for reconstruction.—Mr. W. J. Harvey, J.P., who presided, moved the confirmation of the resolutions, which was seconded by Mr. Paul Henwood, and carried unanimously.—Mr. Grey quite approved of the scheme of reconstruction, but asked whether the board would have a sufficiency of money in hand to attain the objects they had in view.—The Chairman replied in the affirmative, and said that if Thomases Mine were found after full investigation to be worth purchasing, a subsidiary company would be formed to acquire it, a large interest in which would be given to the shareholders in the present company.—Mr. Henwood, who had recently returned from the property, explained, in answer to Mr. Grey, that work had been stopped on the Joe's reef and the Bon Accord because the lease of Thomases Mine was a short one, and they naturally wished to get as much gold out of the ground as possible before it expired. Besides Thomases, they had 54 claims, which in some cases had yielded very rich ore. The company would, after reconstruction, have £22,500 in hand, which would be quite sufficient to pay off the debenture debt, and also to develop during the year at least the whole of the property, including Thomases.—The Chairman remarked that the crushings, which had lately been communicated from the other side, were considered by the board to be, under the circumstances, wholly satisfactory.—A further resolution having been passed appointing Mr. F. W. Sellick as liquidator, at a remuneration of £50, the proceedings terminated.

A NEW STEAMSHIP FOR ORE CARRIAGE.—The Globe Iron Works, of Cleveland, Ohio, have contracted to build one of the largest steel steamships ever constructed on the Lakes. The new vessel is for the Menominee Transportation Company, and will be used for ore freights. She will be 400 feet in length. Construction will be begun at once, and pushed rapidly, so that the vessel may be able to do some service this season.

MINING AT THE MURCHISON.—Mining operations on the Murchison field are still in the fruitful stage. Machinery is arriving in large quantities. There is a constant stream of teams at present on the road between Mullewa and Cue. The Minginew track is also being well patronised for the conveyance of machinery to the island and the mainland. An American battery, ordered for the Kinsella, is expected at the mine in a few days' time. A portable engine is on the way for the Lady Forrest Mine, and by the end of next week Mr. Edols hopes to have some of the Mainland Consols machinery on the ground. He is pushing matters forward with as much expedition as possible, both below and on the surface, and the mine looks very promising.

# PROVINCIAL SHARE MARKETS.

## THE CORNISH MINE SHARE MARKET.

MR. SAMUEL JOHN DAVEY, Dealer in Cornish Mine Shares, Redruth, Cornwall, reports under date of July 18 (four o'clock) as follows:—We have had a firm market this week, but few transactions. Prices are steady to-day. Following are quotations:—Blue Hills, ⅜ to ½; Carn Brea, 3 to 3¼; Cook's Kitchen, ¼ to ⅜; Dolcoath, 46 to 48; East Pool, 5 to 5⅛; Killifreth, ¼ to ⅜; South Crofty, ⅝ to ¾; South Wheal Frances, ¼ to ⅜; Tincroft, 8 to 8¼; West Frances, ⅜ to ½; West Kitty, 5¼ to 5⅜; Wheal Basset, 1⅝ to 2; Wheal Grenville, 13 to 13½; Wheal Kitty (St. Agnes), ⅜ to ⅝; Polberro, ¾ to 1.

Mr. MICHAEL WILLIAMS BAWDEN, Mining and Assaying Offices, Liskeard, Cornwall, writes (July 18) as follows:—The mining market shows more firmness, and prices are well maintained with a limited business, and every probability of more activity at the close of the Election. Closing prices:—Blue Hills, 12s. 6d. to 14s.; Carn Brea, 2⅞ to 3; Cook's Kitchen, ⅜ to ½; Devon Consols, 31s. to 32s. 6d.; Dolcoath, 1⅛ to 1¼, new issue; Drakewalls, 2s. 6d. to 3s.; East Pool, 5⅛ to 5¼; Killifreth, 11s. to 12s. 6d.; Levant, 5 to 5⅛; Polberro, 16s. to 17s. 6d.; South Crofty, 12s. 6d. to 14s.; South Frances, 9s. to 10s.; Tincroft, 8 to 8⅛; West Frances, 15s. to 16s. 6d.; West Kitty, 5⅛ to 5¼; Wheal Basset, 1⅛ to 1⅜; Wheal Grenville, 12¾ to 13; Wheal Kitty, 6s. to 7s. 6d., c.p.

Messrs. ABBOTT AND WICKETT, Stock and Share Brokers and Mining Share Dealers, Redruth, write under date of Thursday, July 18:—As might be expected, business has been limited in the Cornish Share Market during the past week, the forthcoming elections occupying most of the attention. The tone, however, has been firm, and a hopeful feeling exists that better times are in store. Carn Breas, Tincrofts, and Grenvilles are all better, and have been in good demand. The registration of Dolcoath Mine (Limited) is now an accomplished fact, and active dealings are shortly expectedly in the new shares. Quotations herewith:—Blue Hills, ⅜ to ¾; Carn Brea, 2¾ to 3½; Cook's Kitchen, ¼ to ½; Dolcoath (Limited), 1⅛ to 1¼; East Pool, 5 to 5⅛; Killifreth, ⅜ to ⅝; Polberro, ¾ to 1; South Crofty, ½ to ¾; South Frances, ¼ to ½; Tincroft, 8⅛ to 8¾; West Frances, ½ to 1; West Kitty, 5 to 5⅛; Wheal Basset, 1⅛ to 1⅜; Wheal Grenville, 13 to 13½. Tin, 64½.

## MANCHESTER.

Messrs. JOSEPH R. and W. P. BAINES, Stock and Share Brokers, Queen's Chambers, 7, Market-street, write July 18 (noon):—Notwithstanding the advance which still continues in gilt-edged securities (thick or thin edge), railway departments are generally lower on values on the past week. In home rails, Scotch stocks have mended distinctly, but beyond these, if we except one or two advances of about ⅛, the changes are to lower quotations. Whilst in majority, the declines are of not much amount, Berthas ¼ and Great Northern ¾ being ahead, with nothing accompanying them further than ¼, or at most ⅜. Canadians have fallen away more or less all round, Trunk Guaranteed being ¾; ditto First Pref. 1, and ditto Second Pref. ⅝, with Trunk Thirds and Ordinary and Pacifics small fractions lower. Americans, with some oscillations now and then, have been more on the down grade than otherwise, the record of changes being very generally on that side, although the declines are, for the most part, to be expressed in small fractions. The only declines of any moment are Louisvilles $1⅛, and New York Central at $1½ to $2 down. Mexican issues, too, are lower, the First Preference 1½, and the Ordinary ½, the Second Preference remaining unchanged, whilst as we have said, the gilt-edged department have still been in evidence on the upward side. Consols (on which doubtless patriotic Britons would put the most gilt), have declined 3-16, but this is doubtless due to realisations of profits, which the most patriotic hardly as a matter of business would ignore. The only changes in Colonial government bonds, &c., are on the upward side, They are few, however—viz, Canada Registered 1, Victoria Inscribed 1, and New Zealand Inscribed ½. Home corporation stocks continue to appreciate.—Higher: Leeds Four per Cent. 2, Douglas Three and a-Half per Cent. 1½, Bolton Three and a-Half per Cent. 1, Manchester Four per Cent. 1, and Stockport Three per Cent. 1, all higher, there being no declines to set against these upward movements. Foreigners are lower, for the most part. Brazilian Four per Cent, and Turks, 1891, each show ½ up, but the rest of the changes are adverse. Argentine Six per Cent. are 1½ lower, but the rest of the declines are not of much fractional value. Miscellaneous markets have ruled slow. Bank shares have shown a goodly proportion of the business of the week, without anything of importance in alterations of current quotations. The several items of miscellaneous show advances in majority, and for these we have to refer readers to details below. Breweries, under the influence of the rejection of the proposals *re* the Local Veto Bill, have strengthened, but it must be remembered that the fullest possibility is to leave things as they were. Probably a counter proposal in favour of "the trade" might bring about as sweeping a reversal of votes as the proposed Local Veto Bill has accounted for in the now progressing Election. As it is, however, the breweries are in the ascendant, we merely wish to warn investors from following them too far. For details of movements in miscellaneous classes, we merely refer to the changes reported below *in extenso*.

BANKS.—Higher: Lancashire and Yorkshire ⅛, W. D. and Manchester and Salford ⅛.—Lower: Manchester and Liverpool District ⅛, Union ⅛.

INSURANCE.—Higher: British and Foreign Marine ⅛, Lancashire ⅛, Liverpool, London and Globe ⅛, London and Lancashire 5-16, Manchester Fire 1-16, Royal ⅛, State Fire ⅛.—Lower: Commercial Union ⅛, Reliance Marine 1-16.

MINES.—Higher: Chartered ⅛, Consolidated Gold Fields, ⅜, Londonderry ⅛.

TELEGRAPHS AND TELEPHONES absolutely unchanged.

COAL, IRON, &c.—Higher: Dorman Longs ⅛, Ebbw Vales ⅛, R. Evans A ⅛ to ⅜, Tredegar A ⅛.

BREWERIES.—Higher: Clarkson's ⅛, Manchester ⅛, Massey's ⅛, Parker's Burslem ⅛, Springwell ⅛.—Lower: Threlfalls ⅛.

MISCELLANEOUS.—Higher: Barlow and Jones, ⅛; Bodega, ⅛ Brunner Mond, ⅛; Crosses and Winkworth, 1-16; Listers, ⅛; Rylands and Sons, ⅛; Salt Union, 1-16; United Alkali, 3-16 to 5-16.—Lower: National Steam, 1-16 to ⅛; Gas Light A, 1 to 2; Liverpool United Gas A, ⅛.

LATER (4 P.M.).—The announcement of the Great Eastern dividend at ¾ per cent. instead of 1 per cent. has had no adverse effect on prices of home rails, being about what was expected. Americans about ⅛ to ⅜ better; and Grand Trunk issues unchanged, but Canadian Pacific, after rising to 59½, had a sharp relapse.

## EDINBURGH.

Messrs. THOMAS MILLER and SONS, Stock and Share Brokers, 69, Hanover-street, Edinburgh, report as follows under date of July 18: The two leading Scottish railway stocks have been bought at advancing prices during the past week, the traffic returns showing large increases. Caledonian Deferred has advanced from 48 11-16 to 49⅝, and North British from 44½ to 45¾, but the former at one time touched 49¾ and the latter 46. The market has readily absorbed such railway debenture, guaranteed and preference stocks, as have been offered at advanced prices. Bank shares continue in demand. Bank of Scotland has improved from 337 to 339, National from 336 to 341, Commercial from 68½ to 69½, Clydesdale from 19½ to 20. British South Africa (Chartered) shares have been active, and have risen from 96s. 6d. to 101s. Coal shares firm; but little doing in them. Steel Company have risen from 52s. to 59s. A large business has been done in Arizona Copper Preferred shares, which have further advanced from 35s. to 49s. Londonderry Gold have advanced to 16s. 6d. Oils strong. Broxburn have advanced from 13⅜ to 13¾, Youngs from 50s. 9d. to 56s. 9d. Distillers firm at 18½. National Telephone up from 5 11-16 to 5 15-16. New Zealand and Australian Land have improved from 88 to 89. Assets offered at 49s. 6d. (no change).

# MINING IN CORNWALL AND DEVON:

## NOTES ON MINING IN THE WEST.

(BY OUR SPECIAL CORRESPONDENT).

TRANSACTIONS on the Share Market have been few in number during the week. The tone, however, is decidedly firm, and hope of an early improvement is general. Buyers are more numerous than sellers, and shares are decidedly scarce. The registration of Dolcoath as a Limited company is now complete, and a good business in the new shares is looked for. The statement of accounts and report presented at Tincroft meeting were so satisfactory that it is not surprising that the shares should be in request. Other shares have mostly been neglected.

AT Wheal Grenville meeting a very satisfactory balance-sheet will be produced. For the 12 weeks' ending July 29 a profit has been made on the sale of 235 tons of tin, of £854 12s. 3d., which, added to the previous balance of £751 17s. 4d., gives a total balance of £1606 9s. 7d. in favour of the mine. The cash at the bank amounts to £1940 12s. 6d., so that there is a sufficient amount in hand to give a dividend of 5s. a share, and to carry forward a substantial balance to the credit of the next account. In view, however, of the fact that there are certain law charges arising out of the recent action with South Condurrow to be met, it is not probable that the committee will think it prudent to recommend so large a dividend as 5s. The mine still looks exceedingly well, the various points being valued in the aggregate at £300 per fathom.

WEST KITTY meeting is fixed for next Tuesday on the mine. A profit will be shown, but it is not certain that the declaration of a dividend will be deemed expedient. The improvement at the 60 east, south of slide, is maintained, the lode being worth £18 per fathom.

AT the joint meeting of Cornish scientific societies, held on Tuesday, Mr. W. Burgess, of the Tuckingmill Foundry Company, read a highly interesting paper on economy and speed in air-compressing and rock-drilling, in which he dealt especially with the air-compressor erected by the company at Wheal Agar, of which Mr. McCulloch is the patentee. It has hitherto taken 10 cwts. of coal per diem to drive one drill, but at Wheal Agar only 5 cwts. were used. For four weeks, during which they drove nearly 38 fathoms of level, the coal cost 16s. 0½d. per fathom, and if the full amount of work expected under the agreement had been given them, the cost per fathom would have been reduced to 12s. 6d. It has also been generally accepted that to arrive at the cost of rock-boring to the mine, the price given to the miners for the work must be doubled. The work at Wheal Agar was taken at the prices ordinarily paid for rock-boring, but, in spite of this, a small profit was shown after paying for labour, salaries, material, and all other charges; and the profit made would have been still more with a full overturn of work. These results are surely worthy of the careful attention of all mine managers and adventurers who are devoting their attention to the increasingly difficult problem of how to make both ends meet.

CAPTAIN JOSIAH THOMAS has returned to Camborne, having derived great benefit from his recent trip to South Africa. He has resumed his duties at Dolcoath.


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have been instructed to SELL by AUCTION, early in August, as above.
Full particulars are being prepared, and may be obtained of the AUCTIONEERS, St. Austell.
Dated July 16, 1895.

BILLITON COMPANY.

THE MANAGERS beg to give notice that on the PUBLIC AUCTION, to be held at Batavia, on August 21st, 1895, will be SOLD about
12,000 PICOLS of BILLITON TIN.
A. VAN KAPPEN, Director,
M. G. STAAL, Secretary.
The Hague, July 15th, 1895.

# MINING FIELDS IN THE CRYSTALLINE SCHISTS OF WEST AUSTRALIA.

By BRENTON SYMONS, M.I.C.E.

BESIDES the auriferous rocks of the interior plains, there is a broad belt—sometimes termed Archæan—of highly crystalline schists which run parallel to the western shores of Australia from Albany to Cossack, enclosing gold, copper, tin, and lead ores. The rocks represented are of the usual character, mica schists and slates, chlorite, hornblende and talcose schists, altered grits and limestones, gneiss, &c.; they appear at surface in a belt a hundred miles or more in breadth, from Albany to the Gascoyne river, where they disappear beneath Palæozoic rocks, cropping out again along the coast in the vicinity of Cossack, but even in the Palæozoic area the larger rivers have cut through this formation, revealing the existence of the Archæan beneath. Along the abrupt western flank of the Darling range, between Bunbury and Perth, numerous large quartz veins occur in beds of clay-slate, mica-schists, and sandstones, striking nearly north and south, and dipping steeply west when not vertical; these lodes are associated with felsite and diorite dykes. The gangue contains auriferous pyrites, and sometimes free gold is visible. Assays—which never run high—seem to show, however, that some of them may yield sufficient gold to repay reduction. Considering the great natural advantages afforded by the existence of sufficient water to drive machinery, the inexhaustible forests which cover the district, the deep gorges which allow of ascertaining the value of the lodes in depth without expenditure of capital in erecting machinery, with a yield of only 6 or 7 dwts., the working of these large reefs would be profitable. There is now an efficient expedition engaged in thoroughly prospecting this mineral district.

Throughout the whole length of the belt auriferous strata have been discovered, generally by accident, and it is probable that by searching the gold-bearing centres would be multiplied. Near Albany, at a place called Kendinup, are many quartz reefs associated with diorite dykes. A syndicate was formed to work them, but as most of the gold was combined with pyrites, from which the gold could not be cheaply extracted, the speculation was unsuccessful. At Bindoon, 40 miles north of Perth, large reefs of auriferous mundic presented similar difficulties. At the Wongan hills, 40 miles further northward, quartz veins occur in crystalline rocks, with actinolite resting on granitic rocks. The gangue is sprinkled with mundic, which at surface has been oxidised, and the gold being thus released, becomes visible. The veins are small and strike with the strata. The gold was discovered here as far back as 1888 by a man named Paine. Gold was discovered in 1868 in alluvium on the north side of Peterwangy hill, 20 miles south of Mullewa railway station. Among the schistose rocks are many quartz reefs, the backs of some of them rendered gossany by the weathering of the pyrites, but up to the present they have not been worked for gold. At the Nancarrong hills, on the road to Cue, there is a highly metamorphic country, which is intersected by felsite dykes. Numerous quartz reefs, some with gossany outcrops, follow both the strike and dip of the schistose strata, whose dip is near verticality. The quartz is bluish, containing mundic and chalcopyrite, with occasionally visible gold. In the Robinson range, at the head of the Gascoyne river, is an auriferous district which has received as yet no attention, though the gravels in the river are sometimes rich in gold. The Archæan bed possesses many auriferous veins, but are at present unworkable, as the gold is contained in ferric sulphide, requiring a special process of treatment, that deters speculators.

### Northampton Copper and Lead Mines.

Between Geraldton and the Murchison river, near the coast, an elevated district of crystalline schists protrude through Mesozoic strata. This is an old mining centre, being first worked in 1840, from which year the history of mining in the colony dates. The mines were opened and worked by English capital, and quite a colony of Cornish miners were settled around Northampton, a village built in the midst of the mines, which were served by a railway 35 miles long, connecting them with the port of Geraldton. The lead mines were very rich, and were successfully worked up to 1880, when the fall in price compelled their suspension. A similar fate overtook the copper mines, though they were exceedingly productive. The backs of the lodes, which are often of immense width, striking north-north-east, yielded rich lead carbonate, that deeper gave place to large bodies of galena, slightly argentiferous. There were several smelting-works of the old type for reducing the galena to pig-lead. The copper lodes are also large and rich, showing at surface masses of oxidised ores, with some native copper; but below the water level these gave place to the sulphides of copper and iron, copper pyrites, copper glance, &c. The ores were dressed up to a sufficiently high produce for shipment to Swansea, but when the value of the Chili bars fell below £40 it was found impossible to work them at any profit, and at present Captain Mitchell and his few Cornishmen raise only such a quantity as the woolships require for ballast. To revive the mining industries of Northampton the Government offered a bonus of £10,000 for the first 10,000 tons of pig-lead produced, and this induced a company to put up a water-jacket furnace, but it is said that imperfect machinery and defective management defeated the attempt. There can be no doubt, however, that a good water-jacket plant to reduce the copper ores to Chili bars would be very successful. At Geraldine Mine, 50 miles north of Geraldton, the denudation of the overlying Cretaceous and Oolitic strata has exposed a series of crystalline schists associated with granite, in which large lodes of lead and copper can be traced by their outcrop for miles, striking about 30° east of north and dipping nearly vertically seawards. The numerous crosscourses have a beautiful effect on the lodes at the point of intersection. These lodes were energetically wrought till the price of metals fell, as a large deserted village with fine smelting-works and mine buildings testify.

In the Arrino copper district mines were also worked on large well-defined lodes traversing the crystalline schists in a meridional direction, but the transport over a roadless sand-plain, 50 miles to Dongara, was so great that the attempt to open up the mine was abandoned. The railway is now close to the district, which may induce another trial ere long. Four or five miles from Roebourne, along the Harding river, some very wide copper lodes occur in the Archæan schists. Owing to the oxidation of the contained mundic they present gossany backs which show a little visible gold. Some of these lodes were formerly wrought, and with new methods of smelting would probably be successful. In similar schists, 50 miles directly east of Roebourne, is the Whim Well Copper Mine, near Mount Negre. The lode runs along a low ridge about ¼ mile in an east and west direction, dipping flatly to the north. It is 12 feet thick, and the ore can be easily dressed up to 25 per cent., though with a water-jacket plant this would not be necessary. At surface the ores are cupric carbonates, chiefly green, and of these an enormous quantity could be raised with but little mining. Very little ore has been sold, not 1000 tons altogether, the cost of transport to Swansea being too heavy. There is not the slightest doubt that this property would give handsome profits.


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BRITISH GUIANA BANK (see advertisement, first page this paper), Georgetown, Demerara.

## ROYAL MINING ACADEMY,

### CLAUSTHAL.

**Session, 1895-96.**

The LECTURES for the Winter Six Months COMMENCE on the 10th OCTOBER, 1895.

Prospectuses free on application to the Directors of the Royal Mining Academy.

BY ORDER OF THE DIRECTORS.

*Clausthal, Harz, 10th July, 1895.*

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Messrs. VENNING and GOLDSMITH,
Solicitors, Devonport.

July 12, 1895.

## COMPANIES AND LEGAL ANNOUNCEMENTS.

*.* Advertisements are inserted in this column at the rate of 9d. per line with a minimum charge of 7s. 6d.

### THE AUSTRALIAN MINING COMPANY

(Incorporated by Royal Charter).

NOTICE IS HEREBY GIVEN that the FIFTIETH ANNUAL GENERAL MEETING of the SHAREHOLDERS of this Company will be held at the Guildhall Tavern, No. 32, Gresham Street, E.C., on MONDAY, 29th inst., at One o'clock p.m. precisely.

To receive the Report, Accounts, and Balance-sheet for the past year; to elect Directors in lieu of Fred T. Cutbill, Esq., and Alfred T. Collier, Esq., who retire by rotation on this occasion, but are eligible for re-election; to fix the remuneration of the Auditors for the past year; to elect Auditors for the present year.

By Order,
E. COLLIER, Secretary.

The Transfer Books will be closed from the 15th to the 29th inst., both days inclusive.

42, New Broad Street, E.C., July 12, 1895.

### THE FRONTINO AND BOLIVIA (South American) GOLD MINING COMPANY (LIMITED).

NOTICE IS HEREBY GIVEN, that the HALF-YEARLY MEETING of the SHAREHOLDERS of this Company will be held at Winchester House, Old Broad Street, in the City of London, on MONDAY, the 29th day of July, 1895, at Two o'clock p.m., for the following purposes:—

To receive the Report of the Directors, and the audited Statement of Accounts of the Company for the six months ending the 31st December, 1894.

To declare a Dividend, and for other business.

The Transfer Books of the Company will be closed from Monday, the 29th day of July, until Saturday, the 3rd day of August, 1895, both days inclusive.

By order of the Board,
J. JAMESON TRURAN, Secretary.

184, Gresham House, Old Broad Street,
London, E.C., 13th July, 1895.

N.B.—The Directors' Report and Accounts will be issued before the meeting.

### THE OOREGUM GOLD MINING COMPANY OF INDIA (LIMITED).

AT a meeting of the Directors of this Company, held to-day, IT WAS RESOLVED—

"That a Dividend of 2s. per Share on the Preference Shares, and an Interim Dividend (free of Income Tax) of 2s. per Share on both Preference and Ordinary Shares be, and are hereby declared, payable on the 28th day of August, 1895, to the Shareholders on the Books of the Company on the 6th August, 1895, and that the Transfer Books be closed during the said 6th August."

JOHN GARLAND, Secretary.

6 and 7, Queen Street Place, London, E.C.,
16th July, 1895.

### AGENCY OF THE NEW BULTFONTEIN MINING COMPANY (LIMITED).

July 15, 1895.

NOTICE TO SHAREHOLDERS.

SHAREHOLDERS are requested to present their Share Certificates at the Offices of the Company, in London or Kimberley, on July 29, or as early a date thereafter as possible, in order to receive new certificates in exchange for those now held by them.

No Bonus Shares will be issued or new certificates granted except on presentation by the registered holders, or their duly authorised nominees, of the certificates they now hold.

By Order, CLEMENT GIBBS, London Secretary.

Warnford Court, E.C.

### THE BECHUANALAND EXPLORATION COMPANY (LIMITED).

NOTICE IS HEREBY GIVEN that, pursuant to the Resolution passed at the SHAREHOLDERS' MEETING on the 12th July, 1895, the directors are prepared to allot 100,000 new shares of £1 each to the present shareholders at 30s. per share, being the *pro rata* proportion on the basis of one share in the new issue for every two shares now held by them. The 30s. per share will be payable by two instalments—namely, 15s. on application, and 15s. on allotment.

Forms of application will be posted on the 17th instant to all shareholders on the register on the 12th July, 1895.

Holders of share warrants to bearer desiring to participate in the allotment of new shares must lodge their share warrants, as stated below, on or before MONDAY, the 22nd of July, 1895, for the purpose of identification to enable the offer of new shares to be made, and the share warrants must be accompanied by a letter, giving the distinctive number of each share warrant, and the full name and address of the holder:—

(1) In London, at the Registered Office of the Company, 19, St. Swithin's Lane, E.C.

(2) In Paris, at the office of Mr. A. Tiano, 24, Rue de la Chaussee d'Antin.

All applications for new shares must be made on the prescribed form, which must be left with the company's bankers, Messrs. Robarts, Lubbock and Co., 15, Lombard Street, London, E.C., on or before Thursday, the 25th day of July, 1895, accompanied by a remittance at the rate of 15s. per share.

The new shares, as soon as they are fully paid up, will have the same rights and privileges as the existing shares of the company. No transfer of new shares will be accepted until they are fully paid up.

Applicants for new shares shall, to save any question, be deemed to have had notice of all contracts entered into by or in connection with the company, within the meaning of Section 38 of the Companies Act, 1867, and to have waived any further compliance with such section.

In default of receiving an application with remittance from any shareholder by the date above-mentioned, the directors will assume that he does not desire an allotment, and they will deal with the shares in accordance with the resolution above referred to.

By order of the board,
H. K. EVANS, Secretary.

19, St. Swithin's Lane, London, E.C.,
16th July, 1895.

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|---|---|---|---|---|
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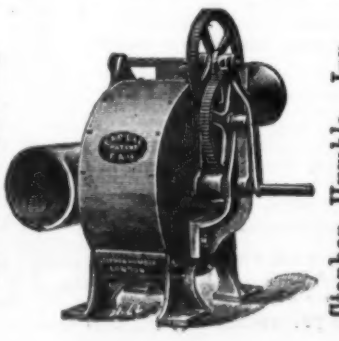

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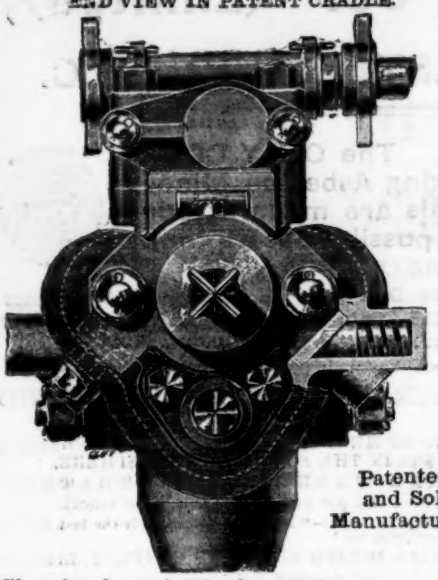

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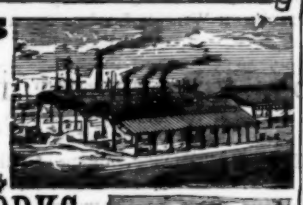

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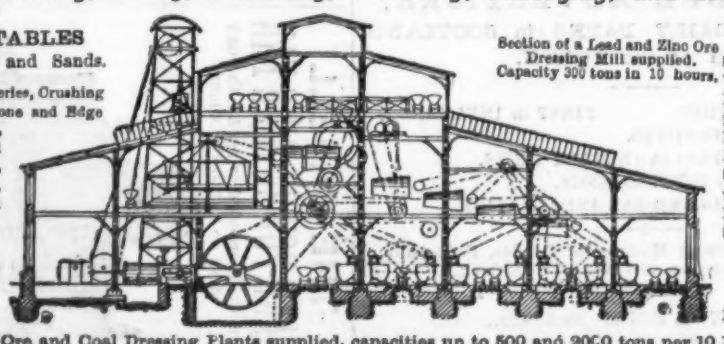

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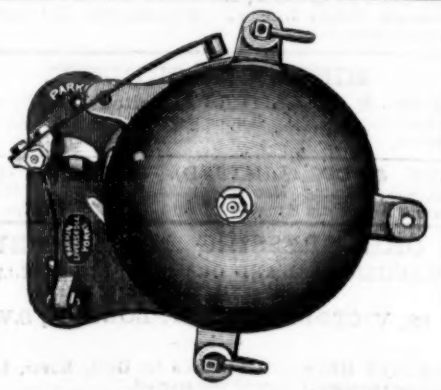

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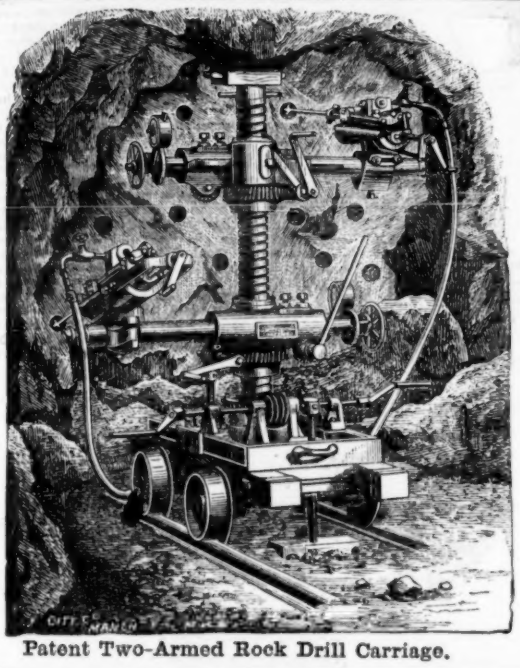

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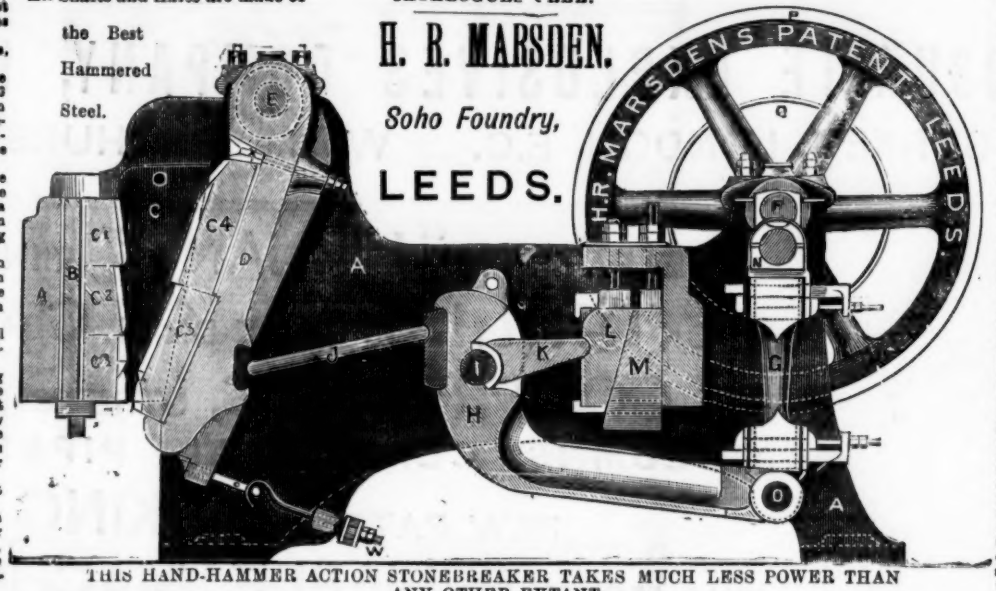


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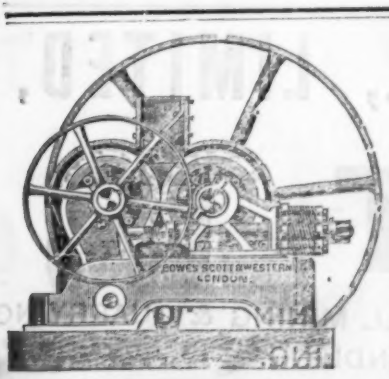


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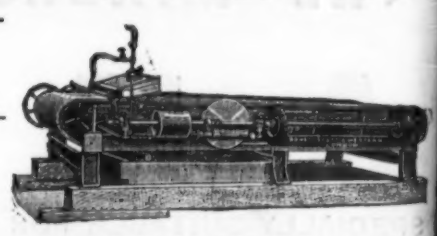

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